Biotech

PELLET AND WOOD CHIP HEATING

Instructions manual

Top Light / Top Light M / Top Light M MBW
PZ8RL / PZ25RL / PZ32RL / PZ35RL

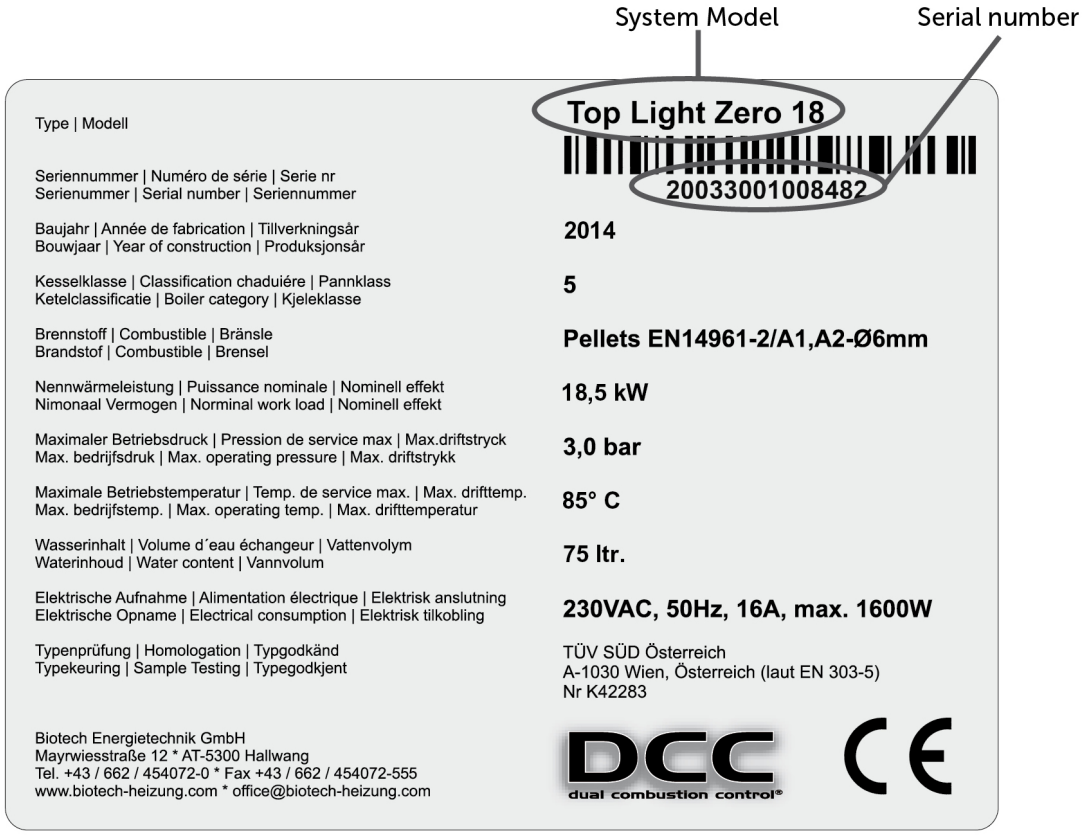
Please read these instructions in full before operating the system.

940000100030 / EN / 60s / V2.0

Important

Caution

Please note that even when the system is switched off, various functions are still operational!
(e.g.: the rust prevention unit: Pumps and mixers move periodically during the night hours in order to prevent the formation of deposits)
In order to be sure that no current is flowing through the system, your heating system must be disconnected from the mains!
When contacting customer services, please have the serial number and the precise system model ID to hand. These details can be found on the identification plate, which is located on the system's day tank.
„The Clean Air Act 1993 and Smoke Control Areas"
Under the Clean Air Act local authorities may declare the whole or part of the district of the authority to be a smoke control area. It is an offence to emit smoke from a chimney of a building, from a furnace or from any fixed boiler if located in a designated smoke control area. It is also an offence to acquire an „unauthorised fuel" for use within a smoke control area unless it is used in an „exempt" appliance („exempted" from the controls which generally apply in the smoke control area).
The Secretary of State for Environment, Food and Rural Affairs has powers under the Act to authorise smokeless fuels or exempt appliances for use in smoke control areas in England. In Scotland and Wales this power rests with Ministers in the devolved administrations for those countries. Separate legislation, the Clean Air (Northern Ireland) Order 1981, applies in Northern Ireland. Therefore it is a requirement that fuels burnt or obtained for use in smoke control areas have been „authorised" in Regulations and that appliances used to burn solid fuel in those areas (other than „authorised" fuels) have been exempted by an Order made and signed by the Secretary of State or Minister in the devolved administrations.
Further information on the requirements of the Clean Air Act can be found here:
https://www.gov.uk/smoke-control-area-rules
Your local authority is responsible for implementing the Clean Air Act 1993 including designation and supervision of smoke control areas and you can contact them for details of Clean Air Act requirements".
"The Biotech Pellet Boilers Top Light, Top Light M, Top Light M MBW, PZ8RL, PZ25RL, PZ35RL have been recommended as suitable for use in smoke control areas when burning Wood Pellets".



Symbol (may not match the type plate on the boiler)

Content

01 General Information

• Our customer service or an authorized specialist contractor must carry out assembly, installation, and initial start-up (setting) of our pellet heating system.
• Recommendation: For long burner running times, in order to reduce the start-stop emissions and to reduce maintenance costs, the boiler should be fitted with a buffer storage tank, thermosiphon buffer storage tank or combination storage tank. In practice, buffer capacities between 40 and 75 litres/kW have proven successful. Be sure to take into account the country-specific requirements regarding buffer storage tanks. The operation of the system is only permissible if it can be guaranteed that the boiler‘s nominal heat output can be reduced by 50% for a period of at least 2 hours.
• Use only those fuels recommended by us - wood pellets pursuant to EN 14961-2, Class A1+ A2 (Ø 6 mm). Only in this way can low-emission, economic, and trouble-free operation of your pellet heating system be ensured. Non-compliance will result in voiding of the guarantee.
• At regular intervals, perform the maintenance and cleaning procedures recommended by us in the manual for your pellet heating system. When this is done you not only ensure the functional reliability of the system and its safety systems, but also efficient, low-emission operation of the system. You achieve the best care of your pellet heating system by concluding a maintenance contract. The indicated cleaning and maintenance intervals must be unconditionally respected. Please note that, no warranty claim arises for damage that is the result of non-compliance with the maintenance instructions.
• Your heating boiler is adjustable within an output range of 30% to 100% of the rated output. The units should **be operated if at all possible in the middle and upper output range (adjusted to the respective heat requirement)**, in order to avoid unnecessary emissions in low load operation. The ideal is the combination with a modulating room and heating regulator in order to avoid unnecessary cycles and to enable the longest possible running times.
• If technical changes are undertaken independently, we assume no liability for damages that that may result thereof.
• Any procedure undertaken by persons other than those authorized by us, and non-compliance with these general considerations and the safety notices described below, shall result in immediate voiding of any warranty claim as well as the guarantee.
• Damaged parts and unit components must be replaced only with original replacement parts.
• It is urgently recommended that this manual be kept within reach in the heating room.
• The pellet heating system described in this manual has been tested in accordance with EN303-5.
• The generally applicable rules of heating technology must be observed for protection against Legionella.
• NOTE: When using pellet heating systems with 2 suction turbines (e.g. 100kW boiler) the daily tank is unequally emptied (complete emptying cannot be ensured). We have already recommended in the planning a division of the storage area of between 60 and 40%.

The mandatory maintenance of the system must be done by authorized technicians at least one a year but no later than when reaching 1500 hours of operation (with an output range of 80-100%). If NO service is performed, the warranty claim or the warranty is void!

• In the course of maintenance work on the pellet heating system all wear parts are replaced and billed, if necessary. For service work to be performed, the system must be „cold“. If the system is not shut down in sufficient time and is still “warm” when the service technician arrives, the resulting idle and waiting time will also be billed.
• Foreign bodies in the fuel can result in damage to the system.
• The regulations pursuant to A-Norm M 7136 (Transport and Storage Logistics) and M 7137 (Pellet Storage Requirement) must be observed.
• Please note that you must observe the prescribed servicing intervals during the warranty period!
• Properties that require a high degree of security for heat supply (the hotel business, process heating, etc.) are to be equipped with dual boiler systems. If this requirement is not met, we will deny any claims for consequential damage based on a faulty heating source. In a biomass heating system, it is essential to take appropriate care (caretaker, porter, etc.) so that the stipulated maintenance tasks are carried out regularly!

• Datasheet on Wood Pellets pursuant to EN 14961-2, Classes A1 + A2 (Ø 6 mm)

Parameters (Unit)	ENplus-A1	ENplus-A2
Length (mm)	up to 40 [1]	up to 40 [1]
Fines (%, mass)	≤ 1 [2]	≤ 1 [2]
Ash content (%, mass)	≤ 0,7 [3]	≤ 1,0 [3]
Ash melting temp. (°C)	≥ 1.200	≥ 1.100

1) Maximum 5% of the pellets may be longer than 40 mm, max. length 45 mm.

2) Particles < 3.15 mm, fines at the last loading site.

3) In a water-free state (wf)

YMM 3x2.5 mm cable [2]; electrical connection: 230 V, 50 Hz; fusing 16 A, slow triggering. Protection with protective multiple earthing with fault-current circuit breaker (voltage limits pursuant to EN 50160) ATTENTION: ISO Norm 60364 must be observed! Operational limits: Max. ambient temperature 0-45 °C; max humidity 0-95%

We assume warranty obligations in accordance with the provisions of our warrantee conditions only when original Biotech replacement parts are used. Biotech grants repair service and supply of replacement parts for at least 10 years from the date of purchase of the system!

02 Safety Notes

A heating emergency switch (all-phase multidirectional switch off) must be arranged upstream of the combustion chamber! Switch it off before carrying out the maintenance and/or service work!

The safety notes must absolutely be read before operating the system! Non-compliance with the safety notes can result in physical injury, life-threatening situations, or damage to the system!

• The pellet heating system may be operated only in technically perfect condition. Malfunctions and damage that adversely affect or are capable of adversely affecting safety, must be resolved promptly by our technical personnel.
• Assembly must be done only by our customer service or by an authorized technical contractor . The system includes rotating parts that are driven at relatively high torque (crushing hazard).
• Live voltage parts are located under the enclosure and in the junction boxes. Therefore never remove enclosure parts or never open the junction boxes!
• During running operation never open the maintenance ports of the boiler; hot flue gas and dust can escape.
• **The system must be switched off prior to carrying out any maintenance. Use the ON/OFF switch** to switch off the system. Wait until the system is cooled down (please refer to the boiler temperature on the display). Then switch the system off using the **Heating Emergency OFF Switch.** Secure the switch against accidental switch-on of the system.
• **Before sweeping the heating tube or the chimney by the chimney cleaner, switch off the system using the ON/OFFswitch and wait for the burn-out process (about 20 minutes). Explosion hazard due to flue gas congestion.**
• Never empty flammable liquid into the combustion chamber.
• Never perform repair work yourself on our systems but rely on our technical personnel. A warning sign „Smoking and tampering with open flame and fire is prohibited“ must be posted (hazard when refilling the pellet hopper).
• A certified fire extinguisher must be provided in the heating room.
• **Ensure an adequate supply of fresh air.**
• Secure the heating room against unauthorized access, especially by children.
• The boiler doors and the water-side connections must be inspected once a month for tightness and damage.
• The safety temperature limiter (STL) must be inspected once a year (this should be done during maintenance or service).
• Safety and monitoring devices must not be removed, bypassed or in any other way made inoperative.
• When cleaning and when removing ashes use a dust mask in order to prevent hazards to health and damages.
• When filling the fuel bunker using pump vehicles, the system must be switched off (waiting time: 20 minutes).
• When setting the non-potable water temperature above 60 ºC ensure an appropriate mixture of cold water (scalding hazard).

• The pellet heating unit must be set up and operated only in heating or installation spaces that have been constructed in accordance with regulations.
• A suitable vent valve must be installed on the top of the boiler.
• The heating system must be filled with heating water in accordance with VDI 2035 or A-Norm H 5195-1.
• Annual inspection of the heating water pursuant to A-Norm H 5195-1.
• Annual inspection of the safety valves by a specialist.
• Regular inspection of the expansion daily tank by a specialist.
• Regular inspection in accordance with prTRVB H 118 of the discharge device, automatic wood firing systems, loader.
• Fire prevention specifications that are compliant with the applicable regulatory provisions must be implemented!
• **Please note that even when the system is switched off, different functions are still operating!** (The frost protection device, pumps, and mixers are moved periodically during night times in order to prevent sticking of the bearings). **In order to be certain that absolutely no current is still flowing through the system, you must disconnect your heating unit from the mains!**
• The manufacturer assumes no liability for damage arising from an incorrect hook-up of the flow and return – do not confuse these connections. Establish removable and non-distorted connections. When routing pipelines ensure venting of the boiler block. For the event of repair, equip the system at the appropriate point with shut-off devices (e.g. ball valve etc.).
• Before hooking up the boiler to the heat distribution system: Flush the lines and remove residues.
• Caution: Danger of injury by safety valve blow-off! Direct blow-out water to the drainage point.
• Check the boiler for leaks prior to initial start-up. Pressure test the boiler using the pressure equivalent to the safety valve response pressure. Large pressure will damage the pressure, control, and safety devices. Carryout closure integrity tests in accordance with local regulations.
• Fill the boiler only when it is in a cold condition The flow temperature must not exceed 40°C

03 Return water riser

It must be ensured that the return temperature never drops below 55 °C. Since this is not possible without an automatic return water riser, installation of the device is compulsory.

Disregard voids the warranty.

04 Minimum distance from walls

Model	Top Light	Top Light M	Top Light M MBW	PZ8RL	PZ25RL	PZ35RL
To the back [mm]	0 - 100	0 - 100	0 - 100	280	280	280
Left side to wall [mm]	0 - 100 *	0 - 100 *	0 - 100 *	0 - 100 *	0 - 100 *	0 - 100 *
Right side to wall [mm]	400	400	400	400	400	400

* … Recommendation from at least 250 mm, otherwise increased maintenance (costs)

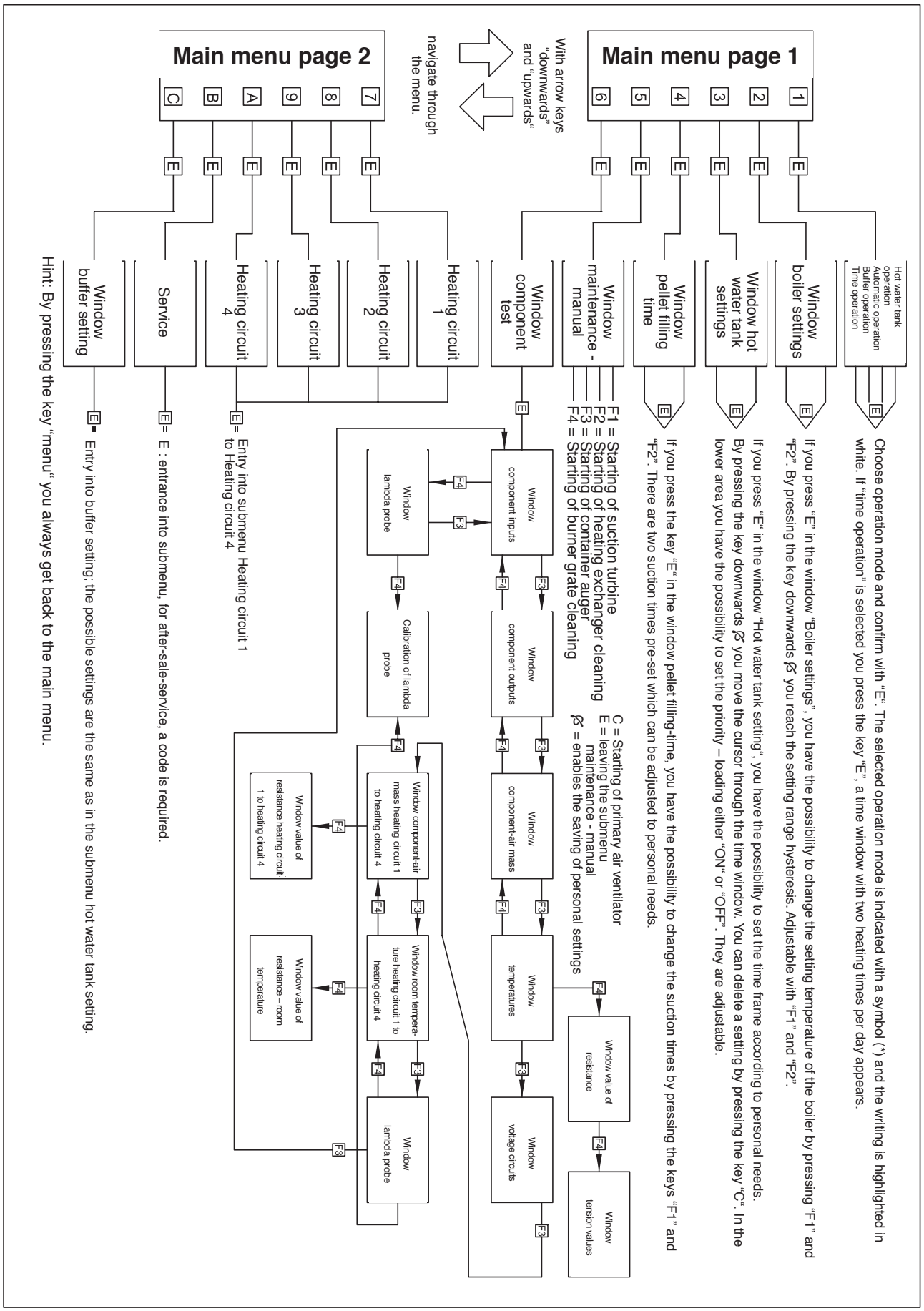
05 Technical data

System type	Top Light	Top Light M Top Light M MBW	PZ8RL	PZ25RL	PZ32RL	PZ35RL
Nominal heat performance (kW)	9,20	14,90	14,50	25,00	32,20	35,00
Degree of efficiency at full load (%)	92,00	93,00	93,64	94,19	92,39	92,39
Degree of efficiency at part load (%)	92,20	93,50	96,34	93,80	95,76	95,76
Max. adjustable boiler temperature (C°)	80	90	90	90	90	90
Tolerable operating pressure (bar)	3	3	3	3	3	3
CE designation according to low tension guidelines	CE	CE	CE	CE	CE	CE
Dimensions						
Width of boiler (mm)	900	1060 / 1300 [7]	1050	1300	1300	1300
Depth of boiler (mm)	480	685 / 650 [7]	650	650	650	650
Total depth (mm)	620 [2]	825 [2] / 680 [2,7]	750 [3]	750 [3]	750 [3]	750 [3]
Height of boiler (mm)	1400 [1]	1345 [1]	1365 [1]	1520 [1]	1770 [1]	1770 [1]
Height of smoke tube connection (mm)	1455 [1]	1415 [1]	815 [1]	1075 [1]	1328 [1]	1328 [1]
Height of flow (mm)	1450 [1]	1445 [1]	346 [1]	455 [1]	454 [1]	454 [1]
Height of return flow (mm)	1450 [1]	1445 [1]	925 [1]	1180 [1]	1424 [1]	1424 [1]
Height of ventilation (mm)	1450 [1]	1435 [1]	935 [1]	1190 [1]	1434 [1]	1434 [1]
Diameter of smoke tube connection (mm)	130	130	130	130	130	130
Total weight (kg)	246	312 / 334 [7]	269	335	388	388
Water content (ltr.)	25	60	50	80	120	120
Reservoir – automatically useable (kg)	27	40 / 180 [7]	34	67	134	134
Ash box - useable (ltr.)	13	6	6	23	23	23
Connections						
Flow (inch)	3/4	1	1	1	5/4	5/4
Return flow (inch)	3/4	1	1	1	5/4	5/4
Ventilation for boiler (inch)	1/2	1/2	1/2	1/2	1/2	1/2
Boiler emptying (inch)	1/2	1/2	1/2	1/2	1/2	1/2
Heating water fow resistance						
ΔT= 20 K (mbar)	-	5	9,5	32,9	25,8	25,8
ΔT= 10 K (mbar)	-	20	37,8	131,7	103,2	103,2
Exhaust gas values						
Exhaust gas temperature at full load (C°)	95,00	125	94,42	119,26	97,01	97,01
Exhaust gas temperature at part load (C°)	54,00	79	50,07	63,90	57,54	57,54
Exhaust gas mass fow at full load (g/s)	5,3	9,0	8,0	15,0	22,0	22,0
Exhaust gas mass fow at part load (g/s)	1,8	3,0	1,9	5,5	5,8	5,8
Co_2 at full load (Vol%)	13,1	13,5	13,311	13,648	12,777	12,777
Co_2 at part load (Vol%)	10,5	9,95	7,755	9,262	9,362	9,362
Necessary delivery pressure (mbar/Pa)	0,02-0,10/2-10	0,02-0,10/2-10	0,02-0,10/2-10	0,02-0,10/2-10	0,02-0,10/2-10	0,02-0,10/2-10
Electric power inpute						
Standby (W)	20	20	20	20	20	20
Filling - Turbine (W)	1600	1600 / 0 [6]	1600	1600	1600	1600
Grate cleaning (W)	65	65	65	65	65	65
Pre-flling (W)	75	75	75	75	75	75
Ignition (W)	1020	1020	1020	1020	1020	1020
At 100% performance (W)	50-80	50-80	50-80	50-80	50-80	50-80
Minimum distance masonry						
Backward (mm)	0-100	0-100	280	280	280	280
Left to masonry (mm)	0-100 [8]	0-100 [8]	0-100 [8]	0-100 [8]	0-100 [8]	0-100 [8]
Right to masonry (mm)	400	400	400	400	400	400
Placement dimension						
At least (mm)	600	800	800	800	800	800
Minimum ceiling height						
At least (mm)	2000	2000	2000	2200	2200	2200
Volume						
In operation (DB)	35	35	35	35	35	35
During suction (DB)	67	67 / 0 [7]	67	67	67	67

1) Without adjustable feet 2) Incl. Control 4) 1983 mm if positioned on top
5) Incl. Ashbox 6) Incl. Heat exchanger cleaning7) Power consumption at pellet heating system TLM (MBW)
8) Technical Data at pellet heating system Top Light M (MBW)
9) Recommendation from at least 250 mm, otherwise increased maintenance (costs)

Individual values base on the standard sample testing. These can deviate in practice.

06 Menu summery



Choose operation mode and confirm with "E". The selected operation mode is indicated with a symbol (*) and the writing is highlighted in white. If "time operation" is selected you press the key "E", a time window with two heating times per day appears.

If you press "E" in the window "Boiler settings", you have the possibility to change the setting temperature of the boiler by pressing "F1" and "F2". By pressing the key downwards ⇩ you reach the setting range hysteresis. Adjustable with "F1" and "F2".

If you press "E" in the window "Hot water tank setting", you have the possibility to set the time frame according to personal needs. By pressing the key downwards ⇩ you move the cursor through the time window. You can delete a setting by pressing the key "C". In the lower area you have the possibility to set the priority – loading either "ON" or "OFF". They are adjustable.

If you press the key "E" in the window pellet filling-time, you have the possibility to change the suction times by pressing the keys "F1" and "F2". There are two suction times pre-set which can be adjusted to personal needs.

E = Entry into submenu Heating circuit 1 to Heating circuit 4

E = E : entrance into submenu, for after-sale-service, a code is required.

E = Entry into buffer setting: the possible settings are the same as in the submenu hot water tank setting.

Hint: By pressing the key "menu" you always get back to the main menu.

07 Refilling of the pellet storage

7.1 Fuel

The wood pellet boiler is designed for burning wood pellets according to Ö-Norm and DIN-Plus SWISSPELLET. By using other qualities of wood pellets, the consistent functioning of the pellet boiler cannot be granted. Failures that are caused by the use of different fuels will not be covered by warranty.

7.2 Pellet loading

While filling the pellet storage or underground tank, observe strictly the following instructions:

• Switch off the pellet boiler approx. 20 minutes before starting the filling operation in order to ensure that the flame inside the pellet boiler has completely extinguished.

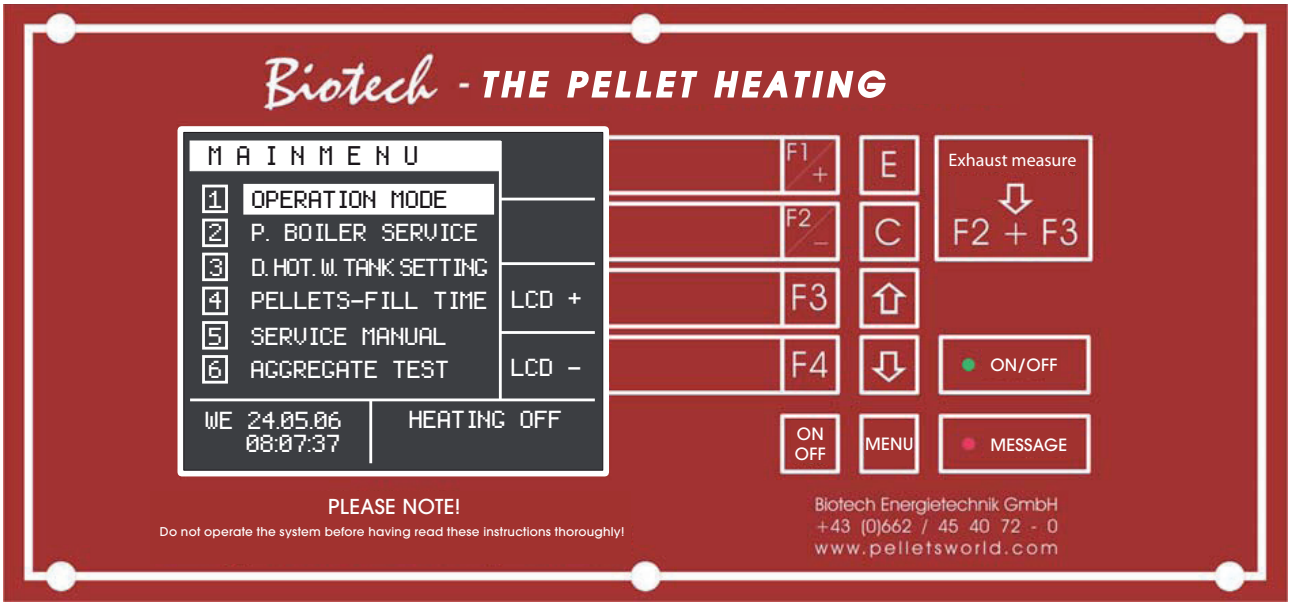
• After re-filling the pellet storage, restart the pellet boiler.

• Pellet feeding by worm screw:
Remove possible excessive deposit of dust around the suction zone.

(Inform your pellet supplier or technical service or qualified re-seller).

Make sure that the worm screw is not feeding an excessive quantity of wood dust during the refilling of the pellet storage.

08 Control Overview



8.1 General – Function keys

The main menu shows the various menus to which you have access.

With the cursor (white highlighted field) you can choose the menu item to perform adjustments or changes.

The functions available and selections can be operated by the function keys F1 + | F2 - | F3 | F4 which are located on the the right column of the display.

The current date and time is always displayed below, on the left hand side of the screen.

The current operation mode of the pellet boiler is displayed below, on the right hand side of the display.

ATTENTION!

If no key is pressed for long time, the display turns black (screen saver).

By pressing the key MENU the menu reappears!

• **Function keys** 

With the function keys you can operate the offered functions left on the screen.

• **ON / OFF key** 

Switch the pellet boiler ON/OFF using this key. Keep pushing the key (approx. 4 seconds) until the desired operation mode is displayed (for instance HEATING OFF).

• **Menu key** 

By pressing the menu key, you always go back to the previous menu. By pressing it repeatedly, you go back to the main menu.

• **Arrow keys** 

With the arrow keys, it is possible to move the cursor downwards or upwards on the display in order to select the target menu.

• **Clear key** 

Press the clear key in order to delete the entered data (without overwriting them.)

• **Enter key** 

By pressing the enter key, you enter the desired sub-menu; the cursor will appear on the menu and it will be possible to enter data or modify existing ones.

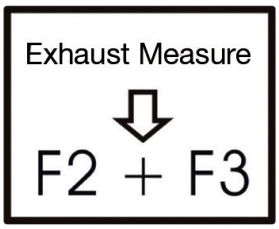
• Fields with light emitting diodes (LED)

The LED beside the writing ● EIN/AUS indicates that the system is ON.

The LED beside the writing ● MELDUNG indicates that a malfunction has occured.

• Chimney sweep function

This function starts by pressing F2 F3 The power of the boiler rises up to 100% (in order to read the flue gas values).



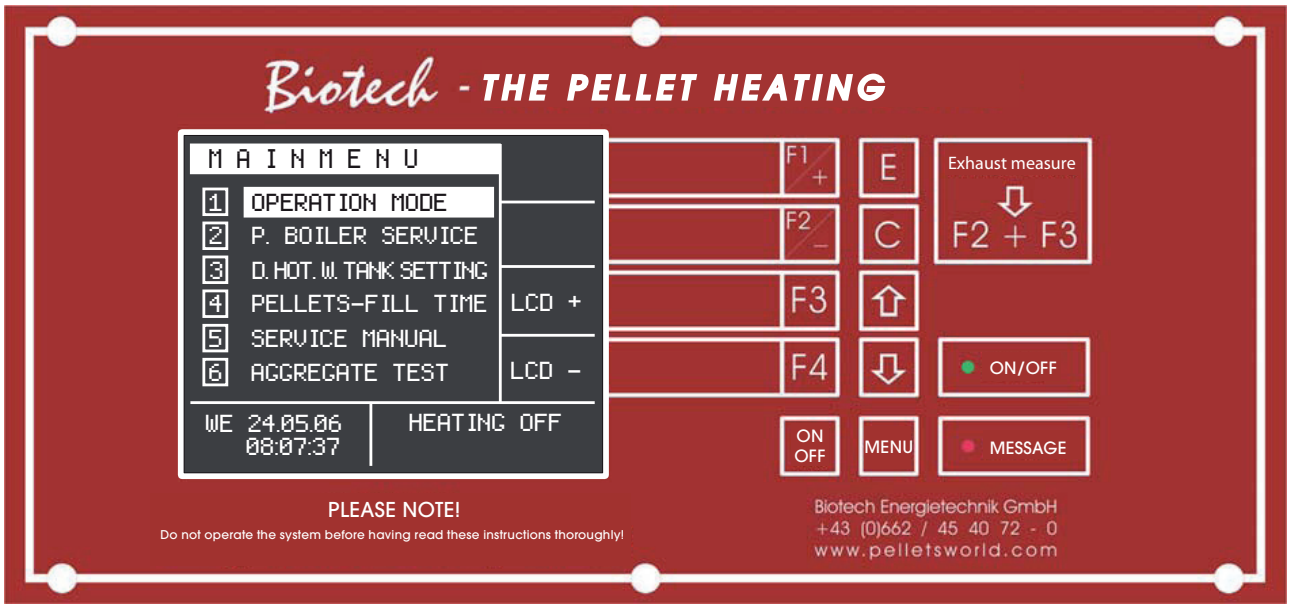
Wait until the boiler temperature is at 60 C before taking the flue gas values.

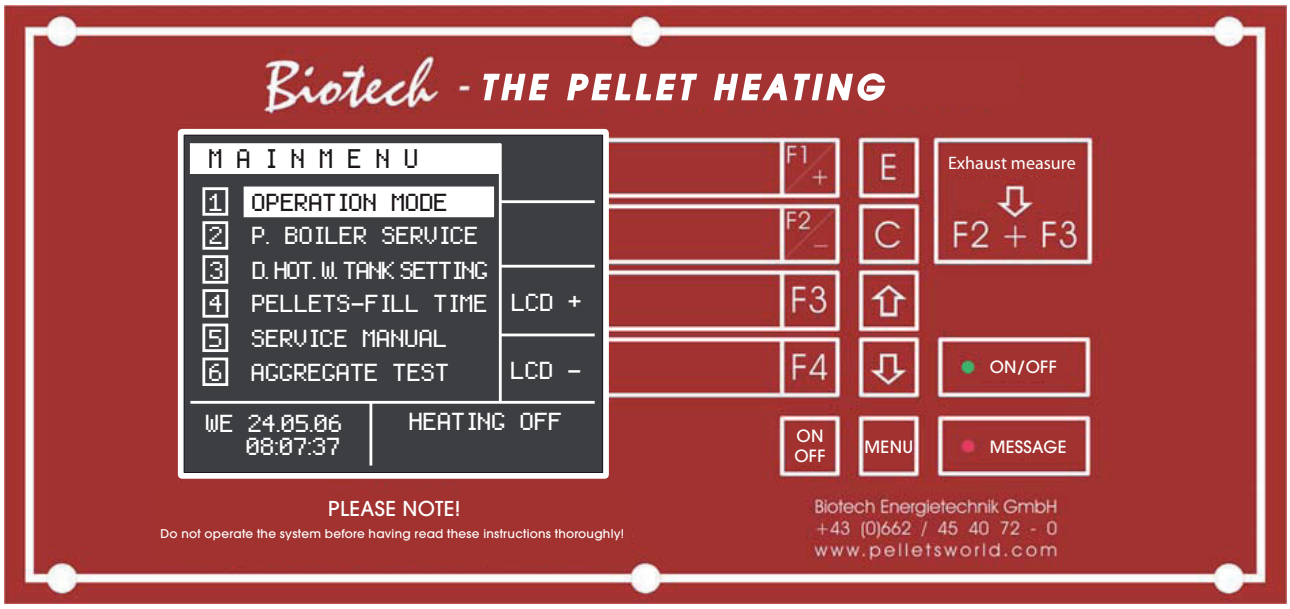
Once the boiler is hot (text „HEAT“ on the display), you can proceed and read the flue gas values. During this operation, with boiler „HOT“, make sure that there is enough heat load on the boiler (e.g. activate the buffer loading, open the heating circuits, ...)

09 Main Menu of terminal board

The main menu is composed of two pages (see below). From this menu you have access to all other sub-menus.

To switch from one page to the other, press the arrow keys ⇧ ⇩ until you reach the next page. To select the target menu item, press the arrow keys until you reach the desired line of the menu; and then press E .





• **Control of screen brightness**

To control the brightness of the display, press F3 and/or F4

9.1 Setting of date and time

Set time as follows:

• If you are not in the main menu, press MENU until you reach the main menu

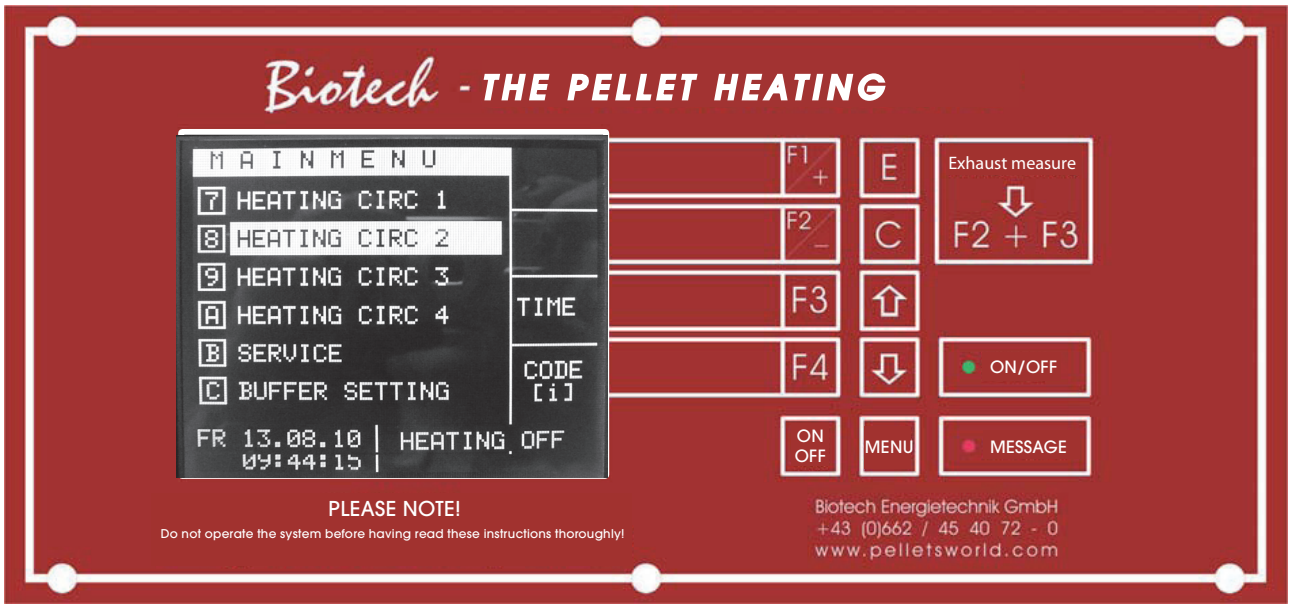
• Press ⇩ till you reach the second page of the main menu

• Press F3 (= clock) - the day of the week is underneath the cursor

• Press F1/+ till target day appears

• Press ⇩ to reach the date

• Proceed with all other settings as described above; to store the settings and to start date and time, press E



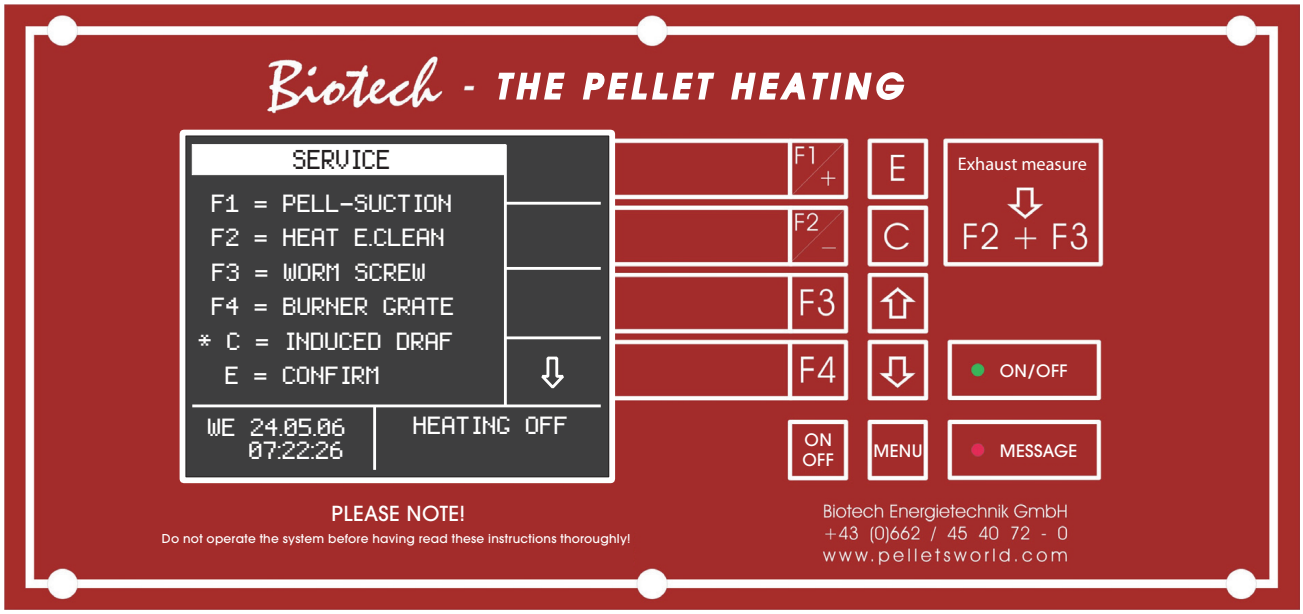
ATTENTION:
The menu items SERVICE and COMPONENT TEST
are for customer service only and secured by code!
Changes in these menus can lead to malfunctions and failure of the system.

10 Data storage menu

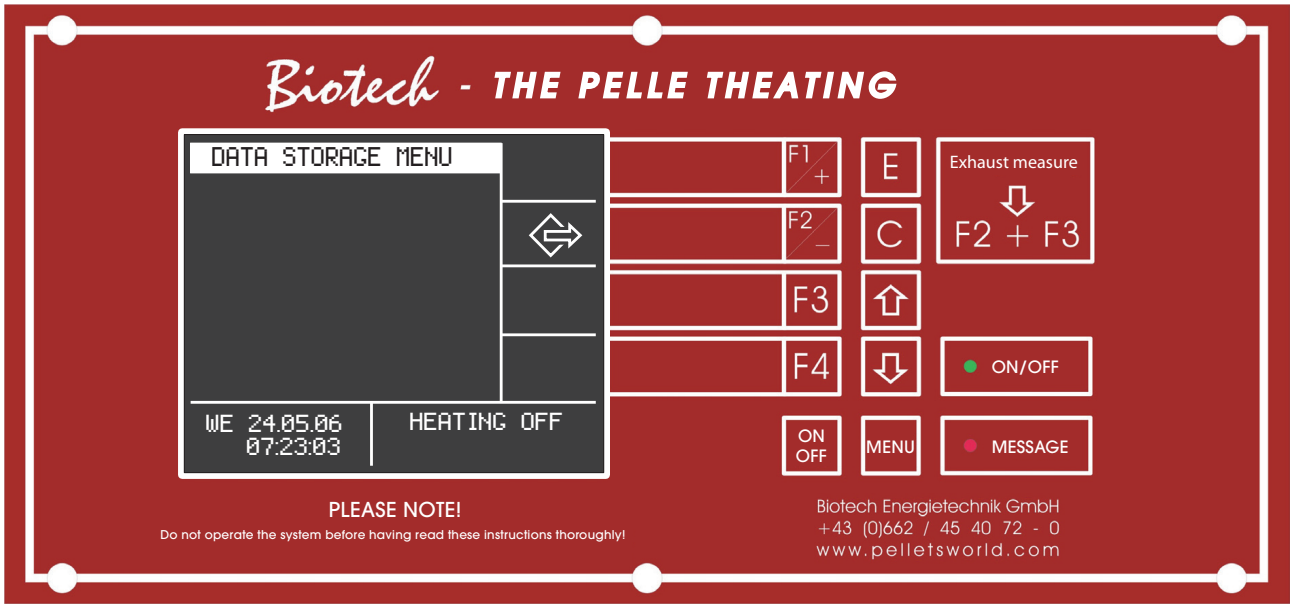
From this menu you can re-load data which has been saved by customer service during starting-up operations (for manual temporary variations). You can only enter the menu when the pellet boiler is switched OFF.

10.1 Enter the data saving menu

- Keep pressing [MENU] till you reach the main menu
- Press arrow [⇧] [⇩] keys till the white bar highlights the menu Maintenance – Manual
- Press [E] (sub-menu Maintenance appears on display)



- Press [⇩] until you enter the Data Storage Menu



• By pressing F2 you can download the values saved on the eprom

You will be asked to confirm if you really wish to take over the values.

• By pressing E all saved values (flow temperature, heating times) will be loaded and the display switches automatically back to the main menu

Please note: It is only possible to load data!
Saving data is secured by a code and is for the use of customer service only!

11 Operation modes

The current operation mode is displayed with the white bar.

11.1 Domestic hot water tank operation mode

Operation mode for the preparation of domestic hot water.

The pellet boiler only starts at the pre-set loading times (see production of domestic hot water).The heating circuit is not activated, even if the temperature falls below the summer / winter switching temperature. The domestic hot water tank pump only starts when the pellet boiler temperature reaches 55°C.

11.2 Automatic operation mode

Can only be selected in combination with a heating circuit regulation controlled by the external weather compensation (outside temperature).

In automatic mode, the domestic hot water tank and the heating are activated together. If there is no heating demand from the heating circuit controlled by the outside temperature, the pellet boiler automatically switches to SUMMER MODE (domestic hot water tank mode) and switches back automatically to WINTER MODE (automatic mode) as soon as the heating is required again.

The switch over is the result of an automatic calculation (based on mixer setting) or of the average daily temperature. The pellet boiler switches to domestic hot water operation mode if no „+“ order arrives from the mixer in 60 minutes. The boiler is not kept on standby temperature anymore and as soon as the mixer demands heat, the pellet boiler restarts, as long as the boiler has reached the switch on temperature set in the hysteresis.

e.g.:	Boiler SET:	70°C
	Hysteresis:	15°C
	Switch on temperature:	55°C

11.3 Buffer operation mode

Buffer operation mode is used in combination with a buffer. Choose this operation mode if the buffer control is controlled via the pellet boiler. Make sure that the buffer probes are mounted correctly

- Buffer switch-on temperature = top probe
- Buffer switch-off temperature = bottom probe

The buffer pump starts at a pellet boiler temperature of 56°C.

With buffer priority „ON“, the domestic hot water tank is loaded via the buffer.

With buffer priority „OFF“, the domestic hot water tank is loaded via the pellet boiler.

If the domestic hot water tank demand is activated and the buffer is cold first, the buffer is loaded until its temperature is 5°C above the set temperature of the domestic hot water tank.

11.4 Time operation mode

This operation mode is mostly used when no automatic heating circuit regulation is available.
The pellet boiler only starts at preset times.The domestic hot water tank loads at preset loading times even if these are different to the programmed heating times.

If the boiler is controlled using an external input then the boiler should be set to time operation mode and the time window set to 24 hour operation
e.g.: from 05:00 to 04:59

11.5 Switching between operation modes

• Press MENU until you reach the main menu

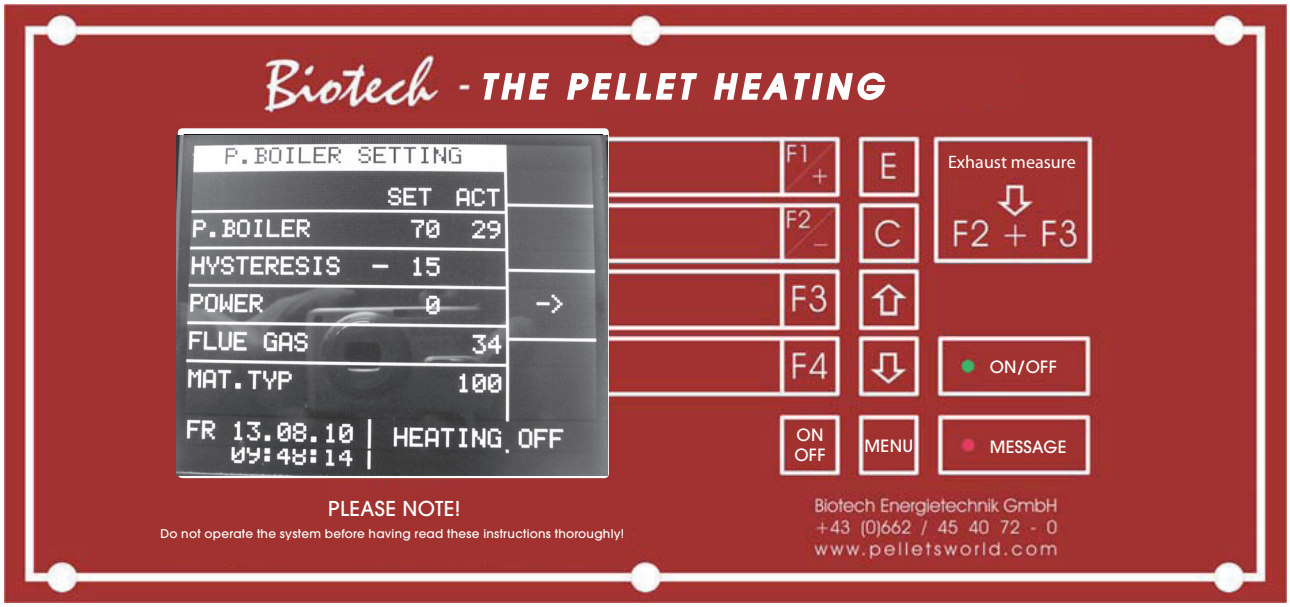
• Press ⇧ ⇩ until the white bar highlights the operation mode

• Press E (submenu operation mode appears on the monitor)

• Press ⇧ ⇩ until the white bar is on the target operation mode

• Press E (the operation mode is now selected and the control switches automatically back to the main menu)

12 Pellet boiler settings



12.1 Setting of the target boiler temperature

- Press MENU until you reach the main menu
- Press ⇧ ⇩ until the white bar highlights the menu p. boiler setting
- Press E (the menu boiler setting is displayed on the display)
- Press E (cursor appears on display)
- Press ⇧ ⇩ to highlight BOILER SET
- Press F1 + or F2 - to set the target temperature (e.g.: 75°C.)
- Press MENU to go back to the main menu

12.2 Setting of the hysteresis

The hysteresis determinates how far the boiler temperature should fall after it has switched off, before it switches on again.

Bsp.:	Boiler set temp.:	75°C
	Hysteresis temp.:	15°C
	Switch on temp. temp.:	59,9°C

The switch on temperature should not be below 55°C - see return water riser.

• Press MENU until you reach the main menu

• Press ⇧ ⇩ until the menu bioler setting is highlightedthe menu bioler setting is highlighted

• Press E (the menu pellet boiler setting appears on the screen)

• Press E (cursor appears on display)

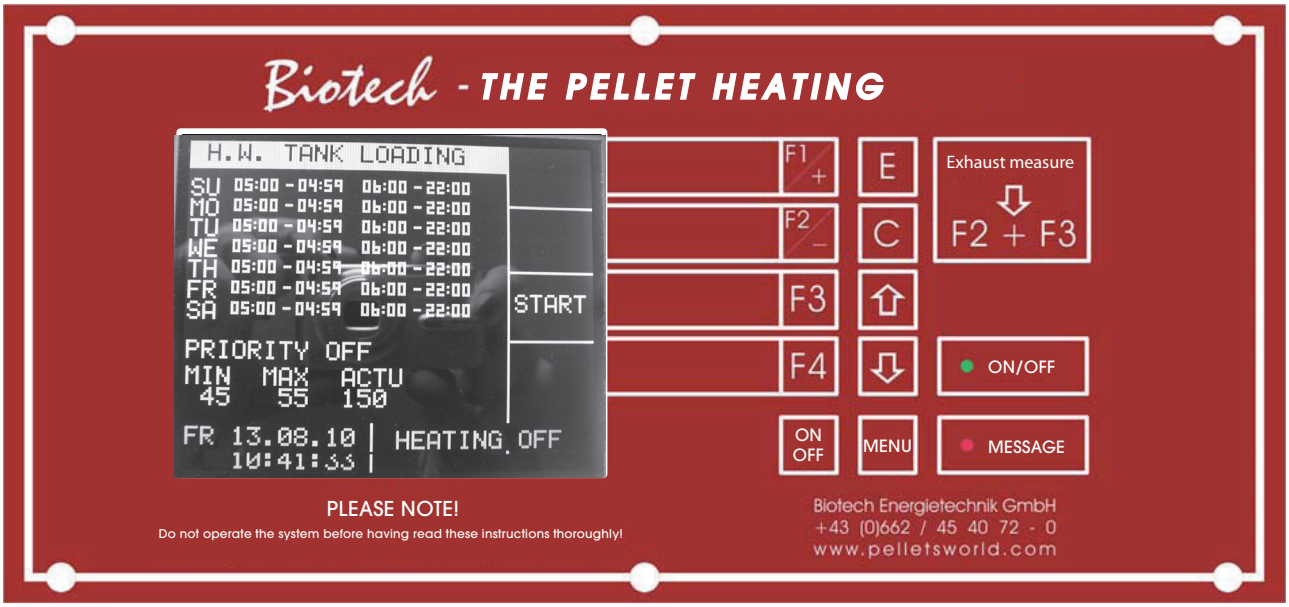
• Press ⇧ ⇩ until the cursor is on hysteresis

• With F2 – and F1 + you can set the target hysteresis (default setting of 15°C can only be modified after previous agreement with customer service)

• Press MENU to save the menu; you get back to the main menu

13 Domestic hot water tank loading

It is possible to program two loading times a day. Using this menu it is also possible to delete or reset the two programmed times. In the menu you can also program the “SET” and “MINIMUM” domestic hot water tank temperature, and to switch the domestic hot water tank priority ON or OFF. Finally you can also start the quick domestic hot water tank loading if you need to prepare hot water outside of the preset boiler loading times.



13.1 Setting of domestic hot water tank loading times

- Press MENU until you reach the main menu
- Press ⇧ ⇩ until the menu domestic hot water tank setting is highlighted domestic hot water tank setting
- Press E (the menu domestic hot water tank loading appears)
- Press E (cursor appears on display)
- Press ⇧ ⇩ until you are on the target time of the day line
- Press F1 + and F2 - to set the target time for domestic hot water tank loading (hours and minutes need to be set extra)
- Press MENU to go back to the main menu

13.2 Setting of domestic hot water tank target / minimum temperature

The DHW is only loaded within the pre-set loading times (e.g. 08:00-09:00) and if the temperature falls below the minimum set temperature

- Press MENU until you reach the main menu
- Press ⇧ ⇩ until the menu domestic hot water tanik is highlighted hot water tank setting
- Press E (the menu hot water tank appears)
- Press E (cursor appears on display)
- Press ⇧ ⇩ until the cursor is on MIN
- Press F2 _ and F1 + to set target temperature
- Press MENU to go back to the main menu

13.3 Delete / activate domestic hot water tank loading times

- Press MENU until you reach the main menu
- Press ⇧ ⇩ until until the menu domestic hot water tanik is highlighted
- Press E (the menu hot water tank loading appears)
- Press E (cursor appears on display)
- Press ⇧ ⇩ until you reach the loading time to be deleted
- Press C the loading time is deleted; instead of time, dashes „--:--„ are displayed
- By pressing C once again the domestic hot water tank will be reactivated!
- Press MENU to go back to the main menu

13.4 Domestic hot water tank priority ON / OFF

- Press MENU until you reach the main menu
- Press ⇧ ⇩ until the menu domestic hot water tank is highlighted
- Press E (the menu hot water tank appears)
- Press E (cursor appears on display)
- Press ⇧ ⇩ until the cursor is on PRIORITY
- Press F1 + and F2 − to switch between ON and OFF
- Press MENU to go back to the main menu

With Priority ON, no power is provided for the heating circuit during the domestic hot water tank loading;the full boiler power is used for the preparation of domestic water.

With Priority OFF, energy is for both hot water and heating circuits during the hot water tank loading phase:
the domestic hot water tank loading process takes longer.

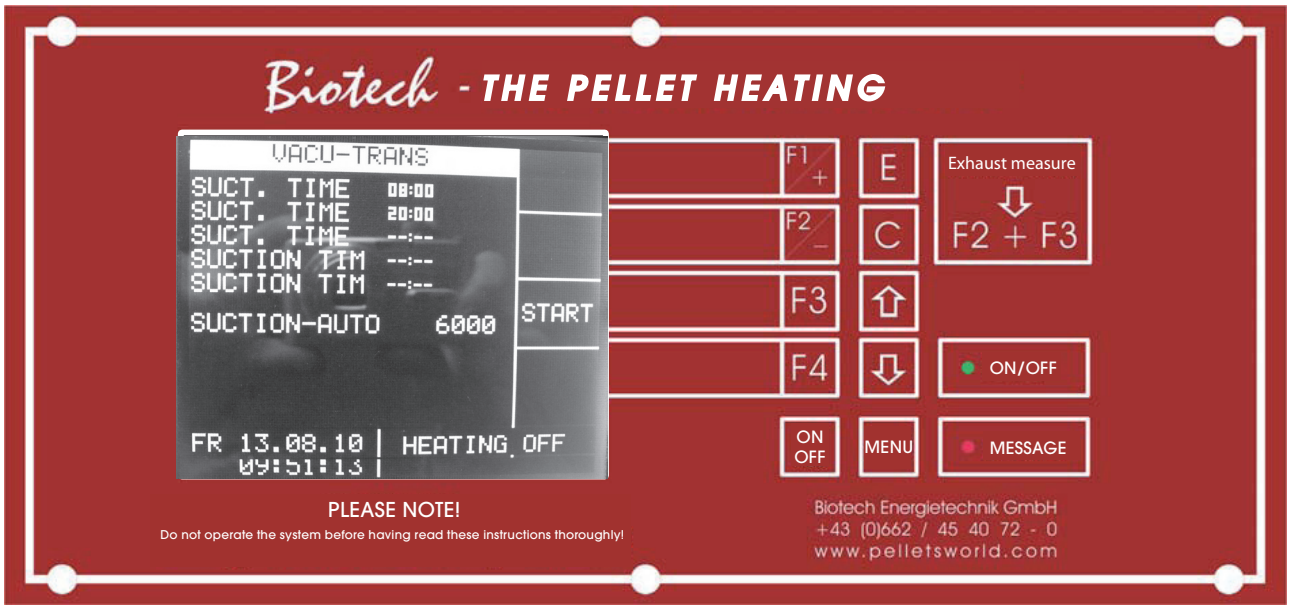
13.5 Domestic hot water tank quick start

It is possible to manually start the DHW loading outside the preset loading times

- Press MENU until you reach the main menu
- Press ⇧ ⇩ until the menu domestic hot water tank setting is highlighted
- Press E (the menu hot water tank loading appeares)
- Press F3 = START key (domestic hot water loading is activated)
- Press MENU to go back to the main menu

14 Pellet feeding device

It is possible to set up to 5 daily starting times of the pellet feeding device to refill the daily pellet tank.



- Press MENU until you reach the main menu
- Press ⇧ ⇩ until menu VACU-TRANS is highlighted
- Press E (menu vacu-trans appears on display)
- Press E (cursor appears on display)
- Press ⇧ ⇩ to reach the suction times
- Press F1 + and F2 - to set target times
- Press MENU to go back to the main menu

Recommendation:

The time span between the suction times shall have the same intervals.

e.g. Interval for 3 suction times in 8 hours: 06:00 14:00 22:00

14.1 Delete / activate suction times

- Press MENU until you reach the main menu
- Press ⇧ ⇩ until the menu VACU-TRANS is highlighted
- Press E (menu vacu-trans appears on display)
- Press E (cursor appears on display)
- Press ⇧ ⇩ until you reach the suction time to delete
- Press C the suction time is deleted; instead of time, dashes „--:--„ appear)
- By pressing C again, C the suction time will be reactivated
- Press MENU to save the value; you get back to the main menu

14.2 Quick start of pellet feeding device

It is possibl to manually start a pellet feeding cycle outside the pre-set times

- Press MENU until you reach the main menu
- Press ⇧ ⇩ until the menu VACU-TRANS is highlilghtes
- Press E (menu vacu-trans appears on display)
- Press F3 = START key (feeding cycle starts)
- Press MENU to go back to the main menu

14.3 Automatic-Suction (FIXED VALUE – cannot be changed)

After a preset numbers of cycles of the worm screw in the daily tank, the daily pellet tank is automatically refilled irrespective of the pre-set loading times. This safety function ensures that the pellet daily tank never runs out of pellets.

At least two suction times shall be set, since with every filling process the automatic heat exchanger cleaning is activated.

The value automatic-suction is a preset variable (number of cycles) defined by Biotech and it differs according to the type of boiler. This value can be changed after consulting with Biotech, without support of after-sales-service.

15 Heating circuits controlled by the outside temperature (max. 4 mixer circuits)

15.1 General Explanation

The integrated heating regulation („climatic“) adjusts the flow water temperature according to the outside temperature and the pre-set hysteresis temperature curve.

It is possible to reduce tthe flow temperature in the night or during the day
(e.g. if nobody is at home during the day).

It is possible to set two time intervals of reduced temperature a day depending on individual customer needs.

You can determinate the value of the temperature reduction according to your personal needs.

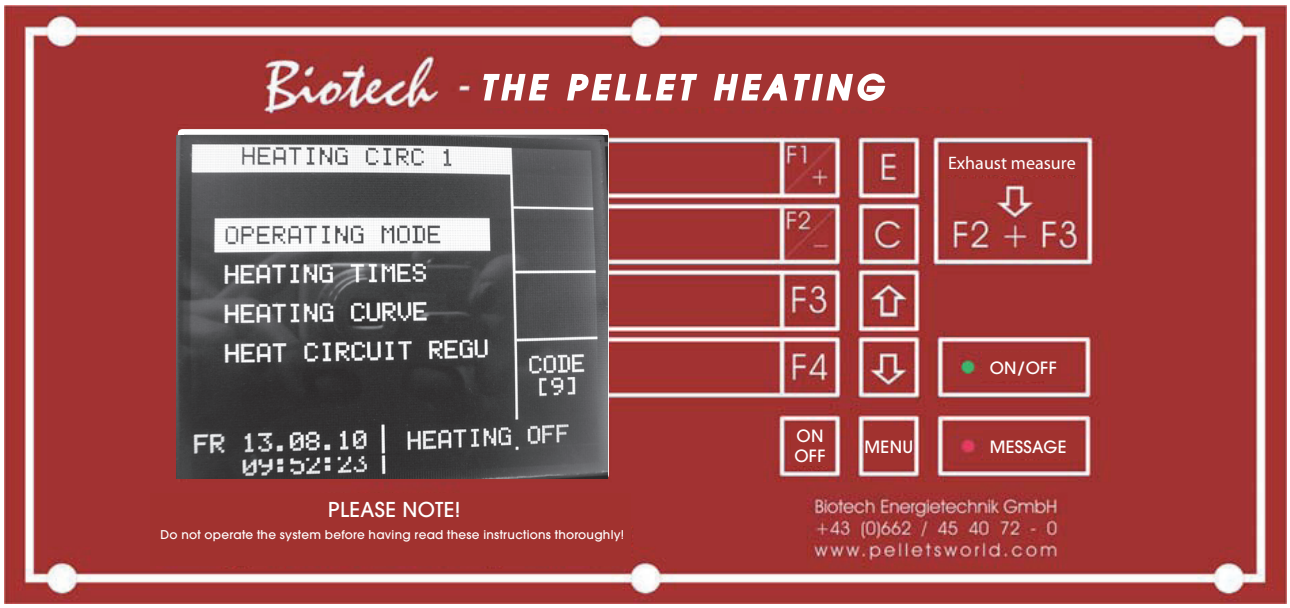
Available operation modes ●Time / Day / Night

TIME	The control works according to the preset heating times and reduced temperature times
DAY	The control does not consider the set times and temperature reduction values but works according to the heating curve, without reducing the temperature (suitable setting for very slow heating systems)
NIGHT	The control only works according to the preset reduced temperature (if you are not at home for several days and wish however to ensure a minimum temperature)

Available operation modes ● External / Fixed / Off

EXTERNAL	The control works according to the outside temperature
FIXED	It is possible to set a fixed temperature of the flow water. The control will maintain this temperature, independently from the outside temperature, day, night or time setting.
OFF	The climatic regulation is turned off

15.2 Main menu description for heating circuit regulation



• Operation mode

In this menu, you select the boiler operating mode: Day /Night / Fixed or on Time. It is also possible to set the value of the reduced temperature, the fixed temperature, the curve value for the room thermostat and the MAX temperature (switching temperature for SUMMER / WINTER)

• Heating times

In this menu you can set the target heating times. It is also possible to view the outside temperature, the calculated temperature or, the ACTUAL temperature of the flow water and the selected operation mode.

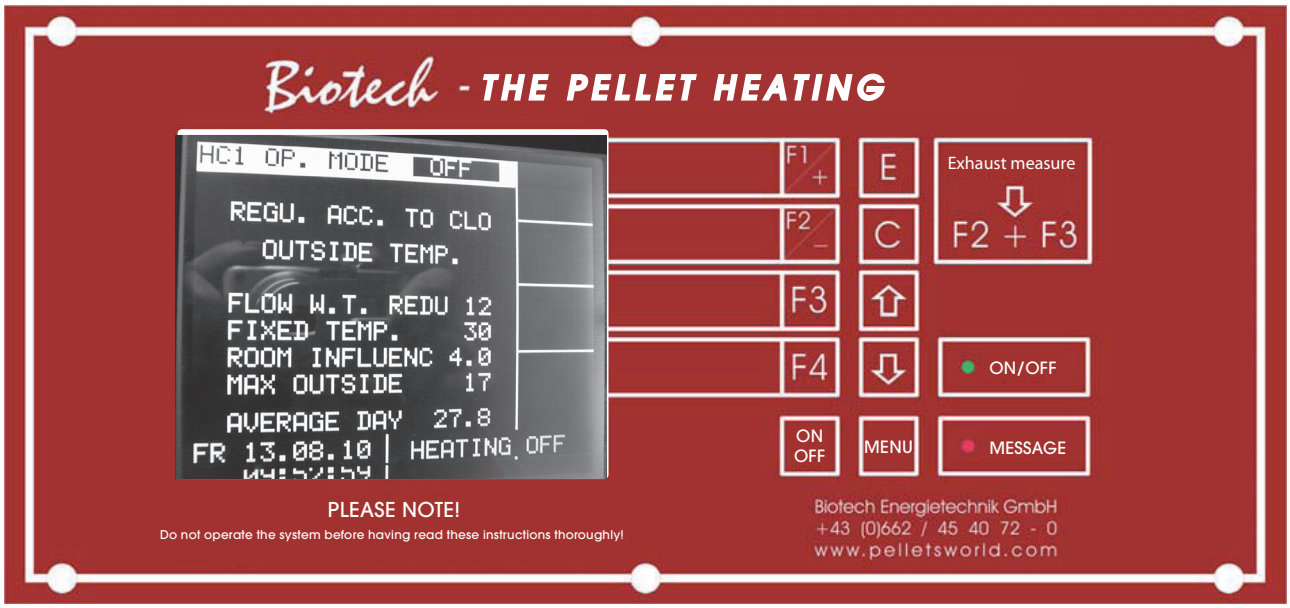
• Heating curve

In this menu, it is possible to suit the heating curve according to your individual needs.

• Heating circuit regulator

The setting of the heating circuit regulator is for the use of Customer Service only (secured by code).

15.3 Setting of operation mode outside temperature



The integrated heating circuit regulation (climatic) regulates the flow temperature according to the outside temperature and the preset temperature curve.

- Press MENU until you reach the main menu
- Press ⇧ ⇩ to highlight the heating circuit
- Press E to open heating circuit menu
- Press E to set the operation mode
- Press ⇧ ⇩ to select different settings
- Press F1 + and F2 - to set target operating mode

The following sub-menus can be changed using the procedure described above

- **Fixed temperature**
- **Heating circuits OFF**
- **Setting of reduced temperature**

15.4 Setting of MAX – Outside - Temperature

This value determines the switching point for the automatic changeover from “automatic mode” with DHW loading to the “DHW mode” without heating.

If the displayed average daily temperature is higher than the preset Max – Outside – Temp., only the the boiler switches into DHW mode.

e.g.: Max outside 17,0°C
Daily average 17,1°C

If the average daily temperature falls under the preset MAX-Outside temperature, the boiler switches to automatic mode with DHW loading.

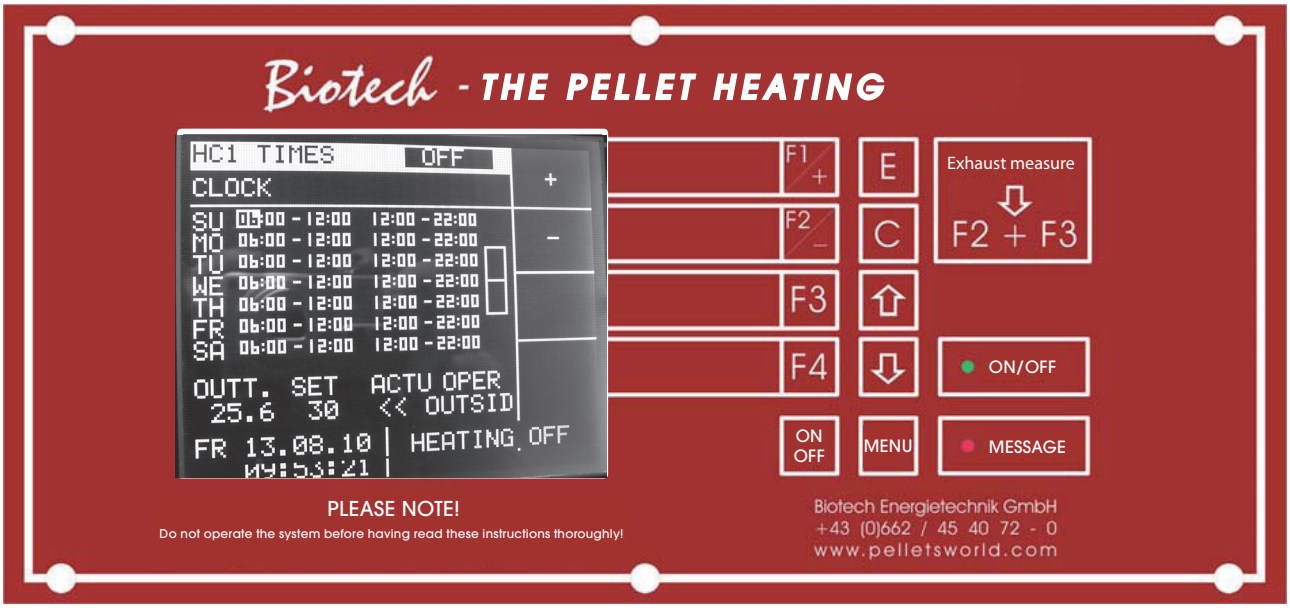
e.g.: Max outside 17,0°C
Daily average 16,9°C

15.5 Setting of KP-room balancing (room ambiance)

In combination with room temperature controller.

This value defines how many degrees Celsius the flow temperature is corrected if the target room temperature varies of one degree Celsius (+/-).
This values defines the flow water temperature at any variation of 1 degree Celsius in the room

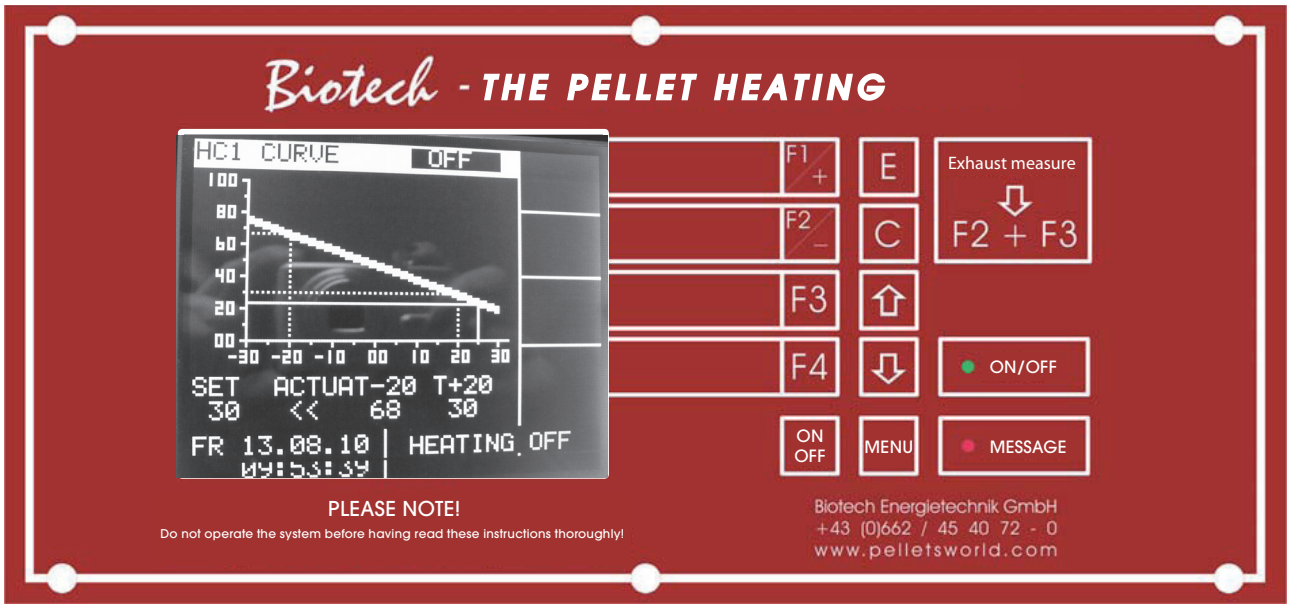
15.6 Setting of heating times



- Press MENU until you reach the main menu
- Press ⇧ ⇩ to highlight heating circuit menu
- Press E to open heating circuit menu
- Press ⇧ ⇩ until the heating time menu is highlighted
- Press E to open the heating times menu
- Press E (the cursor appears on the display)
- Press ⇧ ⇩ to reach the line of the target day and field of the target hour
- Press F1 + and F2 − to set the target minute

Following this procedure you can set the heating time for each day of the week.

15.7 Setting of the heating curve



The heating curve calculates the flow temperature according to the outside temperature. If you change the temperature at T-20°C ot T+20 C, the heating curve is automatically recalculated and the flow temperature chages in cold days respectively in warm days.

- press MENU until you reach the main menu
- press ⇧ ⇩ until the heating circuit menu is highlighted
- press E .
- press ⇧ ⇩ until the the heating curve menu is highlighted
- press E .
- press E (the cursor appears on the display)
- press F1 + and F2 - to set target flow temperature at T-20°C
- press ⇧ ⇩ until the white bar is on the flow water temperature T+20°C
- press key F1 + and F2 - to set the target flow temperature at T+20C

15.8 Setting of Heating Circuit Regulator

This is for the use of Customer Service only and secured by a code!

16 Buffer setting

Recommendation: to ensure ideal operation of the heating circuits we recommend an around the clock activation (e.g. from 05:00 till 04:59)

It is possible to set a daily programming of two buffer loading times. You can also delete or reset these loading times.

You can set the

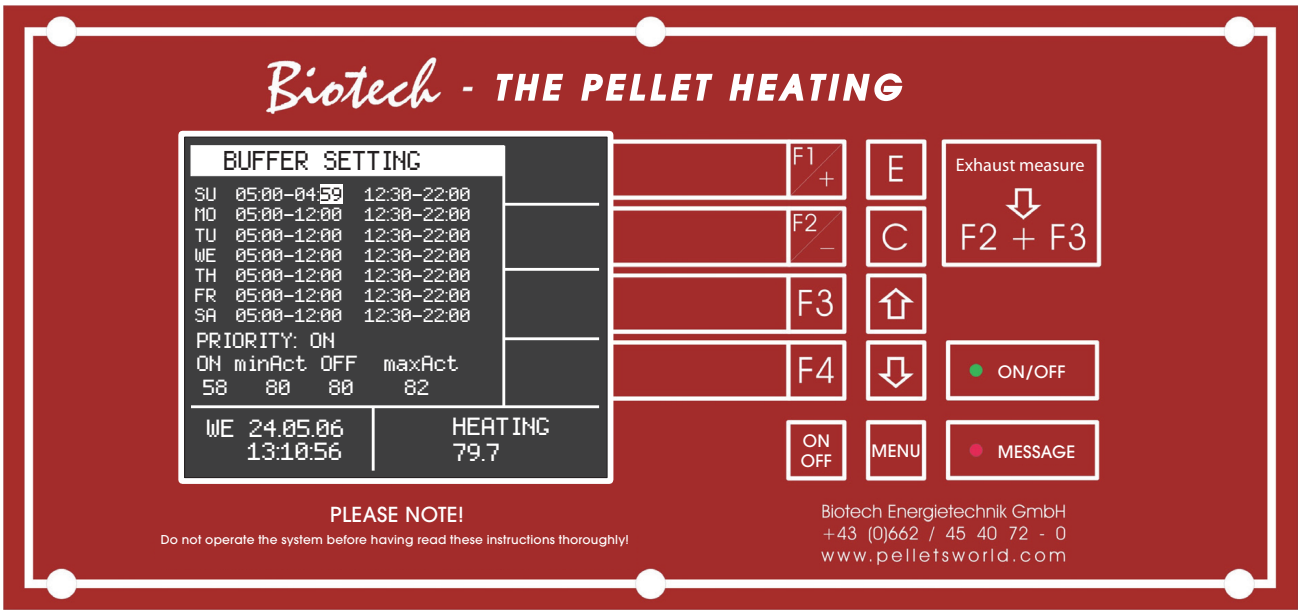
- **Buffer maximum temperature / Switch-off temperature (below)**

- **Buffer minimum temperature / Switch-on temperature (above)**

The buffer priority **ON** or **OFF** is a basic setting which depends on the hydraulic installation (for the plumber or customer service only).

ON means: The hot water tank is loaded by the buffer.
OFF means: The hot water tank is loaded by the boiler.

16.1 Setting of the buffer loading time



- Press MENU until you reach the main menu
- Press ⇧ ⇩ until the buffer setting menu is highlighted
- Press E (menu buffer loading appears on display)
- Press E (the cursor appears on the display)
- Press ⇧ ⇩ to move the cursor to the target line of the value to be changed
- Press F1 + and F2 - to make amendments
- Press C to activate or delete, instead of the time, dashes (“--:--“) appear on the display
- Press MENU to save the values; you get back to the main menu

The following sub-menus can be modified using the same procedure described above

- **Buffer switch-on temperature**

If the temperature falls under the switch-on temperature, the buffer is loaded

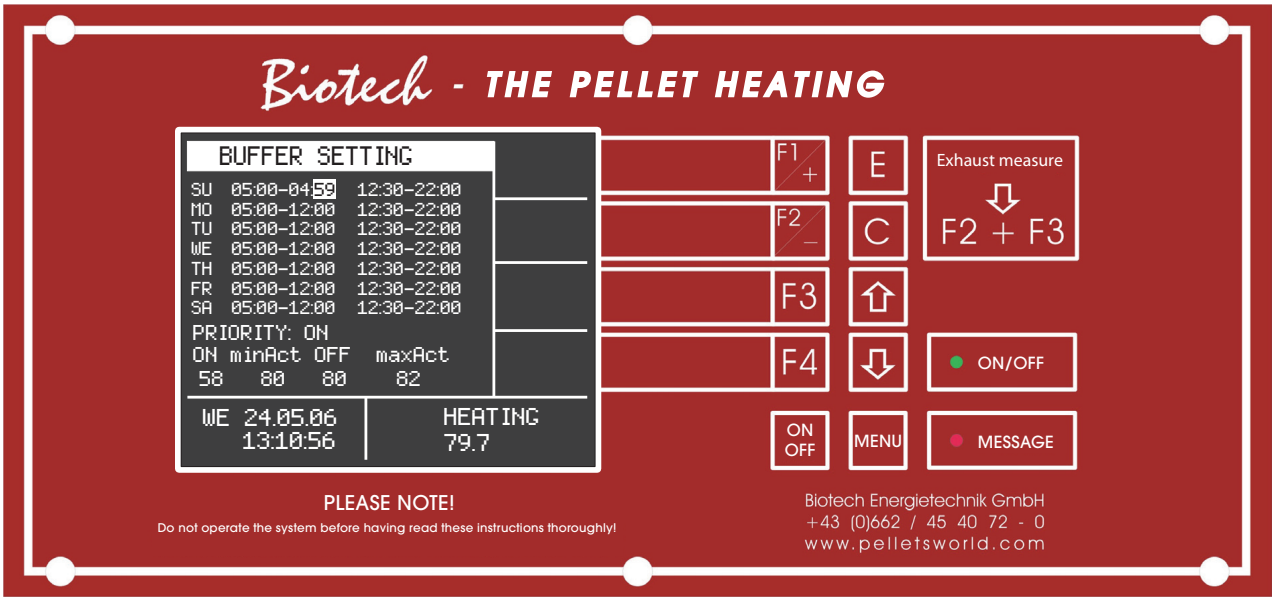
- **Buffer switch-off temperature**

When the switch-off temperature is reached, the buffer loading stops

- **Set buffer loading times**

- **Activate / Delete buffer loading times**

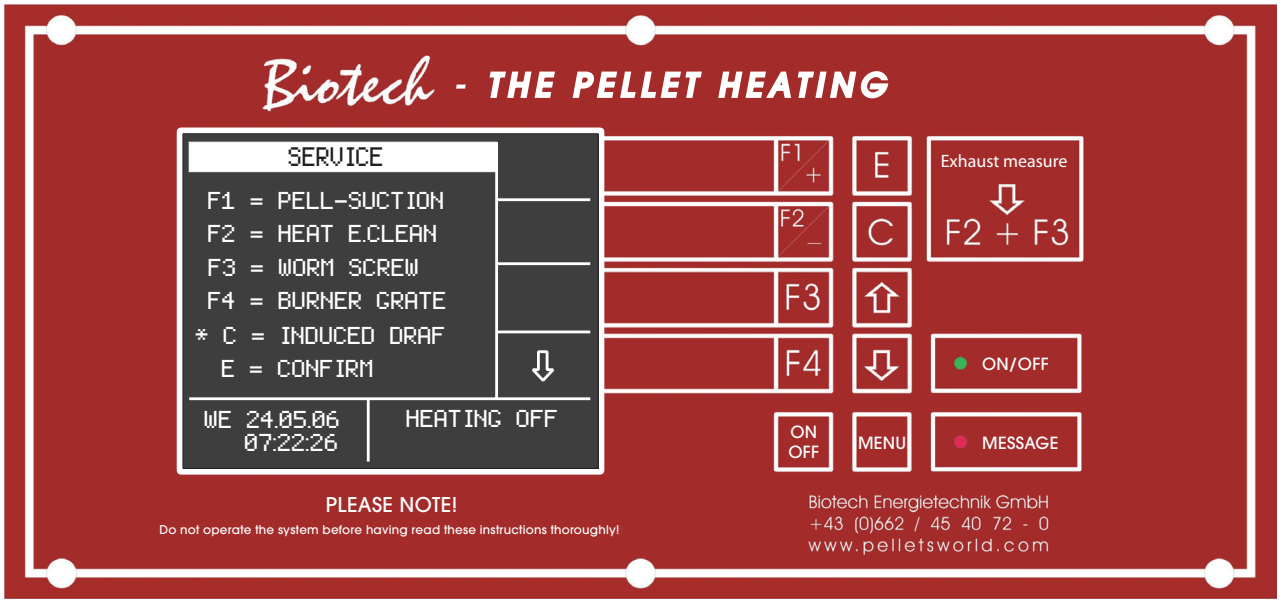
- **Buffer priority ON / OFF**



17 Maintenance – Manual working mode

The display of this menu is only possible if the display shows „Heating OFF“.

This menu is for the cleaning and maintenance of the pellet boiler. From this menu it is possible to select specific components of the pellet boiler and to operate them manually. It is possible to select this menu only with the pellet boiler switched off. An asterisk “*” on the display (see induced draught) will warn you if the heating system is ON.



Activate the following functions by pressing the successive keys:

F1 ... Starts the suction turbine

F2 ... Starts the cleaning of the heat exchanger

F3 ... By keeping it pressed, it starts the pellet metering screw;
it is necessary to refill the metering screw if it runs empty of pellets

F4 ... Opens the burner grate

C ... Starts the flue gas exhauster

E ... Confirm maintenance

18 Periodical maintenance for user

In order to maintain the performance of your Biotech boiler system a periodic cleaning regime is necessary.

18.1 Emptying of the ash drawer / Cleaning of burner area

Depending on the pellet boiler model / working hours / pellet quality, the ash drawer needs to be emptied once every 6-18 weeks. The ash drawer is located on the bottom left of he boiler and is closed via the ash door (fastened by two screwed rotating handles.).

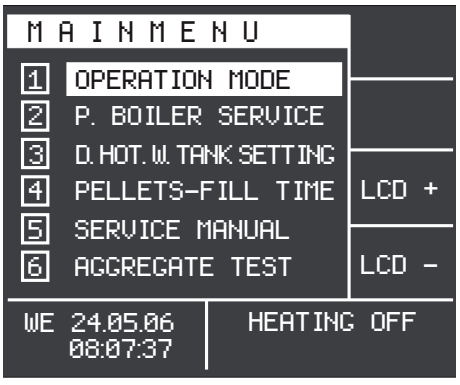
• **Procedure**

ATTENTION: Never take out hot or glowing ashes !

Switch off the heating system by means of ON / OFF key. [EIN AUS]
ATTENTION: After switchingoff the system, please let it cool down for at least 2-3 hours before you can proceed with the following maintenance operations:

ATTENTION:

After switching-off the system, please let it cool down for at least 2-3 hours
Damage caused by the non-compliance with maintenance instructions will not be covered by warranty!



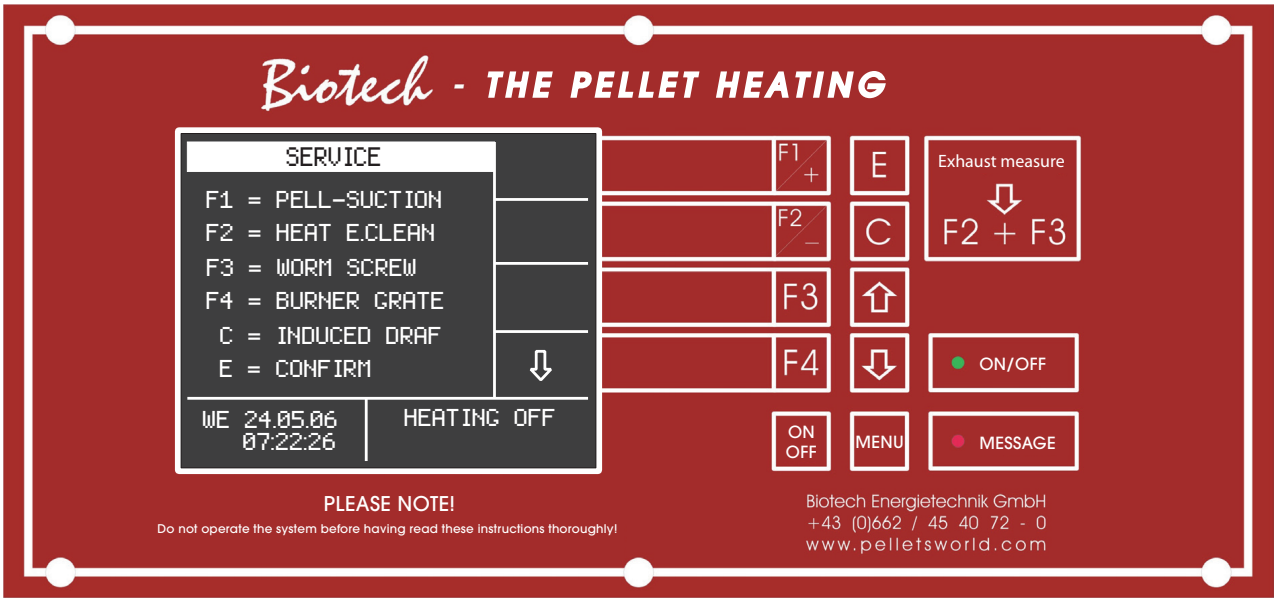
• Await the cooling of the heating system (see heating unit temperature on the display)

• Call the Maintenance – annual working mode menu as follows:

• Press [MENU] until you are back in main menu

• By means of arrow keys [⇧] [⇩] move the white bar to the line Maintenance - Manual

• Press [E] (maintenance menu appears on the display)



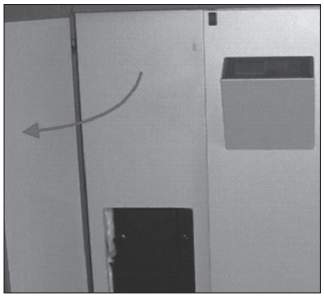
• By pressing [F2] the heat exchanger cleaning will start. Let it run for approx. 5 minutes in order to permit a deep cleaning of the heat exchanger pipes. The procedure will be stopped by pressing again this key.

• Press [F4] to open the burner grate; the ashes fall directly onto the ash drawer underneath.

• In order to prevent dust escaping while opening the boiler door, start the flue gas exhaustern by means of [C]

ATTENTION:
If the display turns black (after approx. 10 minutes),
all aggregate units automatically switch off !ADVICE: If you wish to restart an aggregate unit, start it again with the correspondent key!

• Open the covering door (or remove front cover) in order to have access to the burner cleaning door



• Open the lower cleaning door (fastened with star grips) / wing nuts) to get to the ash chamber..

• Take out the ash drawer from the lower cleaning opening (ash chamber) and empty it.

• Open the upper cleaning door (fastened with 2 star grips) and keep the emptied Ashtray under it.

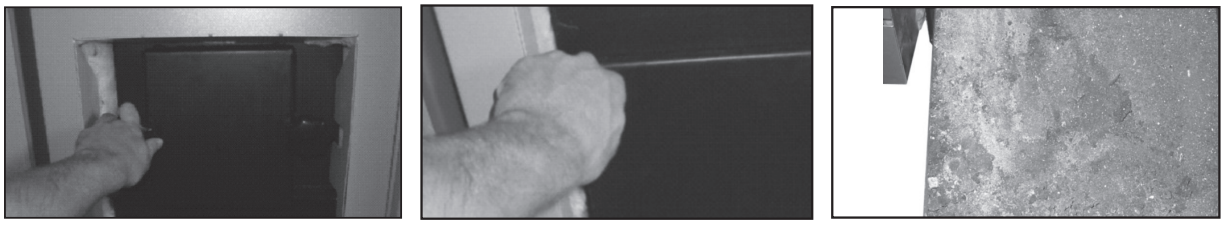
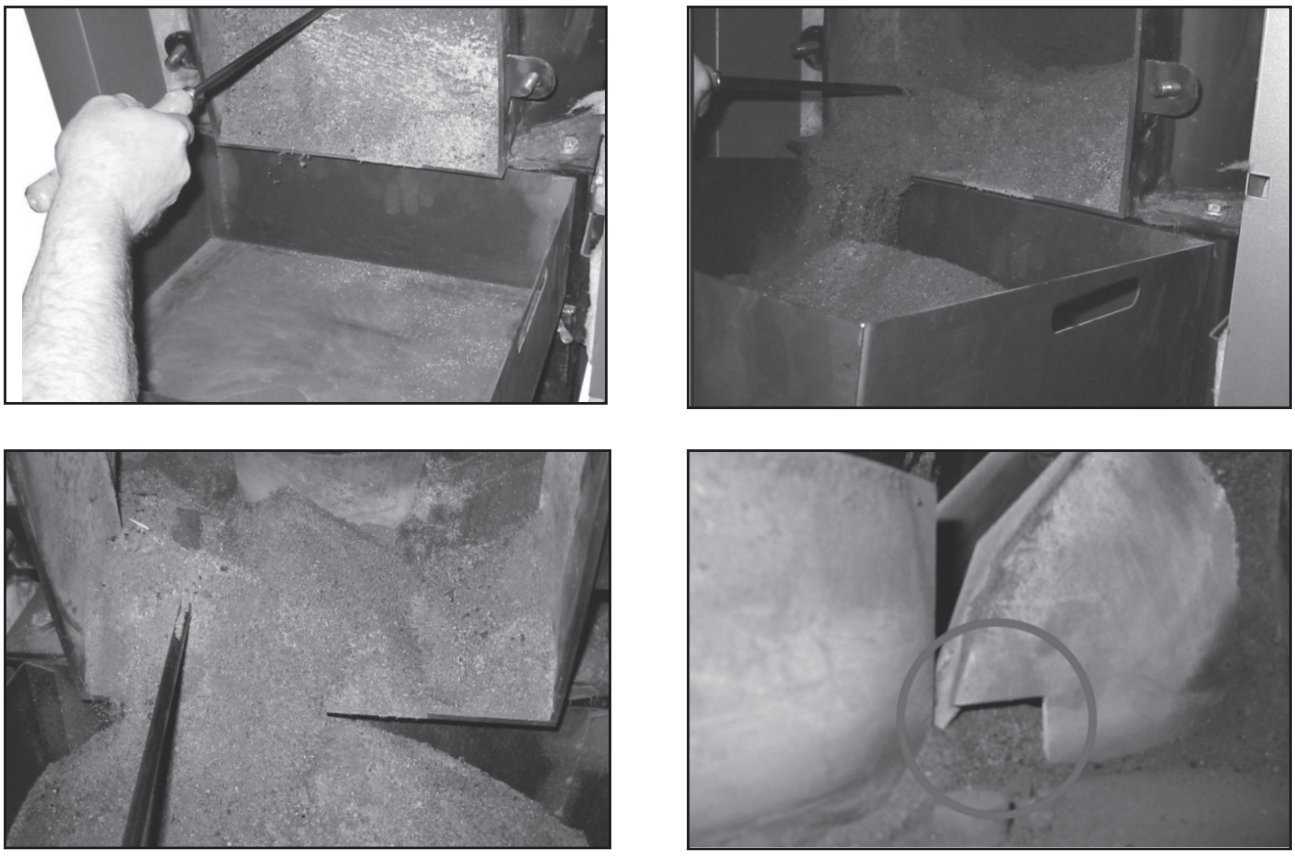
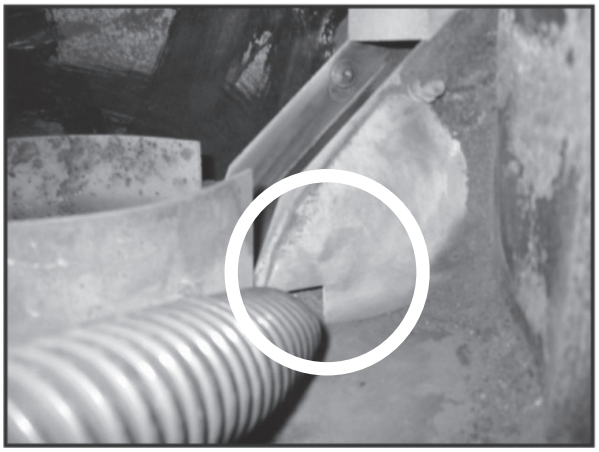


Fig.: Cleaning door

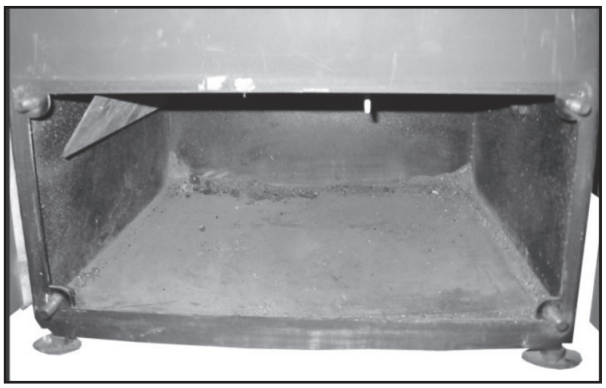
• Remove flue ash which remains around the burner (ash scraper available at Biotech or at your local distributor). Also clean the area around the pellet discharge slides (see pictures below).



• Remove the residual ashes with a vacuum cleaner until the burner area is completely clean



• By means of an vacuum cleaner, remove the residual ash on the ash chamber



• Put back the ash drawer into its original position

• Close both cleaning doors

• Press E to confirm the cleaning operation (all aggregates switch off)

• The removed ashes may be used as fertiliser or disposed with biological waste

• Restart the heating system.

The cleaning procedures described above can be carried out in the course of the annual service by trained personnel!

19 Failure codes / Remedy

Failure messages can mostly be reset by switching off the pellet boiler by means of EIN AUS key.

Before starting the boiler it is necessary to clean the burner and to remove residual pellets to prevent any danger of deflagration.

Contact the customer service whenever you are not sure how to handle with any failure that may occures

Failure	Cause	Remedy
Boiler service *(LED is blinking, boiler runs regularly, no error)*	**Bioler requires cleaning**	Clean the boiler according to instruction (burner and ash-room; see chapter periodical maintenance) Once the boiler has been cleaned enter the menu “maintenance - manual working mode” and press 2-times “E” [E] to reset the counter to “0”“ **Attention:** These point does not release you from servicing your boiler regularly. If no service / maintenance is done, the warranty expires. The maintenance of the boiler should be done in a way to avoid the upcoming of the warning: last hint to service / maintenance
Dark screen	Emergency switch turned OFF	Turn it ON
	Safety Temperature Limiter has released	Let the boiler cool down to 80°C Reset the Safety Temperature Limiter and search for cause (e.g. defect pump…)
Message No. 1	Pellets could not ignite	Check if there are still pellets in the daily tank
Pellet tank empty • *Pellets does not burn*	Suction turbine does not feed pellets	After removing the problem, refill pellet worm screw in manualmode
• *Lambda probe (too low falling off value of oxygen during ignition phase).*	Flue gas temperature sensor or lambda probe are dirty or defect	Take out the flue gas temperature sensor and clean it. Check exhaust gas fan temperature in „Pellet Boiler Setting Menu“. Should sensor be defect: • Inform customer service
• *Flue gas temperature increase is not enough see also no. 3 – no pellet feeding from daily tank*	Ignition device is defect	• Inform customer service

Failure	Cause	Remedy
	Pellet dust percentage is too high	Use recommended pellet quality
	No more pellets in daily tank	Refil
	Pellet feeding is not working	Search for the cause (the flap of the vacutrans does notclose). The flap must oscillate smoothly. Hose of return air from turbine to the feeding worm screw may be too short.
	Pellet dust percentage is too high (angle of repose 70°)	Change the pellets (PVA/PVD)
	Worm screw of daily tank is not full	Let the worm screw run (no pellets in the burner)
	Heating is not connected to ignition device	Switch ON (Switch on position 2)
	Too many slags on ignition pipe (burner)	Clean it
	Ignition pipe does not lead to the burner	Adjust it
	Not enough pellets are fed into the burner during ignition phase	Increase pre-filling quantity (dust percentage is too high
	Condenser of worm screw motor is defect	Replace it • Inform customer service
	Worm screw motor is defect	Replace it • Inform customer service
Message No. 3 ***No pellet feeding from daily tank*** • *Feeding worm screw is blocked*	Worm screw is blocked by something (stones,…)	Empty the pellet tank daily and check if there is something blocking the worm screw and then remove it.After removing the problem, fill the worm screw in the manual working mode. • In case you find nothing, inform the customer service

Failure	Cause	Remedy
Message no. 4 ***Reference is missing*** *• Terminal is defect*		• Inform customer service
	Terminal is defect	Replace it and provide a minimum grounding of 1.5 mm² for the terminal. The pellet separator (flap) must also be grounded.
Message no. 5 ***Temperature control sensor of the worm screw is defect***	The temperature control sensor positioned on the tube of the worm screw is not working	Check if the pellet tank is hot or if there is smoke in the area. If yes, take extinguish actions. • Inform the customer service
	The pellet boiler is not properly insulated	Provide a proper insulation. Safety temperature switch on worm screw switched on and did not reset. Check if pellet daily tank is empty. OK. Restart the boiler
Message no. 6 ***Boiler service***	The burner is dirty; the flow gas fan is dirty or defect	Clean the burner. Check if fue gas fan is blocked. • Inform the customer service
	Air flow sensor or cable is defect	• Inform the customer service

Failure	Cause	Remedy
The pre-set value of primary air sensor has been > 80 *over a period of 60 seconds and this failure occured successively 3 times.* ***ATTENTION: if*** *more than 10 Volt are needed to reach the SET air value, the worm screw on daily tank will stop.*	Heat exchanger cleaning defect	Double check functioning of HE motor and cleaning
	Pellet boiler doors are leaking or open	Seal / close them
	Flue gas fan defect	Replace it
	Air flow blocked	Remove the problem (Clean boiler resp. burner) Air fow probe is defect
	Air flow probe is defect	Replace it
	Wire break	If possible repair or replace it
	Air fow sensor plug loose	Remove the problem
	Air fow sensor (primary air) is dusty	Clean it
Message no. 7 ***Burner Service*** *• Not enough secondary air* ***The pre-set value of secondary air sensor has been < 50%*** *over a period of 60 secs. and this failure occured successively 3 times.*	Burner is dirty, secondary air fan is dirty or defect	Clean the burner Check if secondary air fan is blocked • Inform customer service
	Air flow sensor or cable are defect	• Inform customer service
	Fan is defect	Replace it
	Air flow sensor (secondary air) is dusty	Clean it
	Fan is blocked	Loosen fan (test it in the diagnose)
	Cable break	If possible repair it or replace it
	Air flow sensor plug loose	If possible repair it or replace it
	Air mass indicator	Replace it

Failure	Cause	Remedy
Message no. 8 ***Pellet storage empty*** • *Failure on suction device* • *Inductive vacu trans (the number of set suction cycles is exceeded without message)*	The suction device did not feed pellets.	Check if the pellet suction hose is obstructed. If suction probe is used: check if obstructed. Take out the probe, inspect the suction hose and air hose. If jammed, remove pellets and put probe back in position.
	Pellet storage is empty	Bring pellets into the suction areas. Refll pellet storage
	Number of pre-set loading cycles is not enough	Increase the number
	Hose (suction probe) not properly laid. No ventilation in the pellet storage.	1,5 m vertical; 0,3 m horizontal
	Motor of worm screw is not working	Remove the problem
	Flap not properly adjusted	Resolve – Opening when standstill 10 mm
	Counter weight loose	Fix it
	Suction hose damaged	Replace it
	Return air tube must be at least 2 m longer than the pellet tube (if suction tube is less than 5 m)	Extension of return air tube
	Suction hose to turbine is leaking	Fix it
	Foreign substance at suction point (ex. Insul.paper)	Remove it
	Distance of pellet level sensor wrong	The distance with closed flap must be 3 to max. 5 mm
	Pellet level sensor wrongly wired	Fix the problem
	Pellets too long	See specif. PVA / DIN + pellets

Failure	Cause	Remedy
Message no. 11 ***Start sensor error*** ***Release:*** ***Primary air sensor*** • *The primary air sensor has not been achieved the preset value of „60“ during grate cleaning process*	Heat exchanger cleaning defect	Check functioning of heat exchanger motor and cleaning
	Boiler doors leaking or open	Seal / close them
	Flue gas fan fan is defect	Replace it
	Air flow is blocked	Remove the cause (clean boiler or burner)
	Luftmassensensor defekt	Austauschen

Failure	Cause	Remedy
Message no. 12 ***Lambda probe is defect***	Lambda probe is not sending any signal	• Inform customer service
	Reset the failure by means of ON / OFF KEY . EIN AUS The pellet boiler works on emergency mode !	
	Lambda probe is not sending tension values anymore	Remove the problem
	The limit value during the calibration has been exceeded (0-15)	Seal lambda probe, calibrate it again and if necessary, replace lambda probe
	Lambda probe is wrongly wired (ca. + 15mV)	Connect it accordingly to wiring diagram
	+20 to +30 Volt displayed	Fuse of lambda probe is defect
Message no. 13 ***Ash tank is full*** • *Burner grate is not closing*	Ash tank is full	Empty it
	Grate rod is blocked	Lubricate the grate rod (see maintenance)
	Ash box full	Empty
	Grate cleaning motor is defect	Replace, check connecting wiring (1 x neutral wire; 2 x Phase)
	The grate does not close	Check the grate rods and grate motor (it must be possible to move them by hand)

Failure	Cause	Remedy
	Sensor is wrongly adjusted	Adjust limit switch (distance to the rod min. 2 mm, max. 4 mm)
	Sensor is not reacting	Check connection to terminal boards
Ready (no failure)	No heat request	Open mixer (change temperatures)
	External start bridge on main PCB is missing	Remove the problem
	External control	Provide a bridge (In 4)
	Operation mode set incorrectly	Select the correct one
	External contact does not close	Check external control
	Probes of Heating Circuit Regulation are missing or defect ⇨ 150°C displayed	Connect probes
	Pellet boiler probe is not connected or defect	Replace it
External Control	Setting Domestic Hot WaterTank , Buffer or Automatic	Choose Time operation mode (program time window)
	External contact does not close	Check external control Return voltage of external control min. 15 Volt
Black Display	Safety Temperature Limiter (STL)	Wait or reset (check pumps)
	Boiler sensor burnt because it has been wrongly laid	Replace and lay with insulation
	No power	Provide power supply

Failure	Cause	Remedy
	Fuse is defect (250mA)	Replace. Check air fow sensor: replace if necessary
	Screen saver	Press a key
	Loose cable connection	Fix the problem
	Lamp is defect	Replace the terminal
	Misaligned contrast	2 x Menu, press arrow 10 seconds upwards, then press 2 minutes long F3 or F4
	Temperature in central heating room above 60°C or below -10°C: Display can fail	Provide adequate temperature in central heating room, air the room or close the door
Burner creaks		Burner is new (wait)
Chimney is sweating		Insulate, increase the minimum power, increase the boiler temperature, it may be necessary to restore the chimney
Pellet boiler is sweating		Check return water riser at external control
Heating circuits do not work	The boiler is on hot water tank operation mode	Select automatic mode
	Setting OFF – MANUAL – FIX	Select Outside
	Tmot wrong value	Adjust
	Hydraulic problem	Contact installer
	Night temp. reduction	Adjust
	Day	Adjust

Failure	Cause	Remedy
	Altered heating curve	Adjust
	Heating circuit pump is defect or air is in the system	Fix it
	Mixer motor is defect or wrongly connected	Fix it
	Pumps run on wrong rotation speed	Fix it
	Mixer does not properly close	Fix it
	Room regulation device is not working	Connect it properly, program the values
Domestic hot water tank loading does not work / is not correct	Loading takes place by gravity	Install gate valve, hydraulic switch, or contact installer
	No loading times	Program them
	Dom. Hot water tank probe is defect	Replace it
	Pump is defect or air is in the system	Fix it
	Priority OFF	Switch it ON
	Operation mode incorrect	Select buffer mode

Failure	Cause	Remedy
Buffer loading does not work	No loading times (SET temperature)	Adjust
	Buffer probe is defect (2 pcs.)	Replace it
	Pump is defect or air in the system	Fix it
	Loading takes place in gravity	Brakes, Contact the installer
Boiler power is too low	Heat exchanger cleaning is defect	Fix it
	Condenser (Worm Screw) is defect	Replace it
	Set value of secondary air cannot be achieved	Fix the problem
Room thermostat does not work	Probe wrongly connected	Check connection
	Temperature variation is not programmed (KP Room)	Enter a value
	Wrong compensation values have been programmed	Enter the right values
		Adjust fixed values or sensor setting on room thermostat
Wrong and unbelievable value on display	Wire break (no temperature probe)	Check circuit
K-Power?	The boiler could not reach the preset boiler temperatur within a period of 12 hours.	Check the return fow increase and the boiler power • Inform customer service

20 List of parameters

Menu	Parameters	Setting field	Default setting	Starting up	Customized setting
Operation mode	Operation mode	Automatic mode Time progr.	Funzionamento automatico		
		See starting times of the pellet boiler			
Pellet Boiler setting	Set temperature		70°C		
	Hysteresis	1 – 30 K	15 K		
	Material Type	50 – 200	100		
D.h.water t. setting		See loading times of the domestic hot water tank			
	D.h.water t. priority		OFF		
		45 – 88°C			
	max. temperature		60°C		
Vacu-Trans	Suction time 1	00:00 – 23:59	08:00		
	Suction time	00:00 – 23:59	20:00		
		00:00 – 23:59	--:--		
	Suction time 4	00:00 – 23:59	--:--		
		00:00 – 23:59	--:--		
	Automatic suction	0 – 99999	Depensing on the model of the boiler		
	Heat. circ. mode	Outside temperature Heating circuit OFF FIX	Time regul.		
Operation mode	Operation mode	Outside temperature Heating circuit OFF FIX			
	Flow reduction		12 K		
	Fix value	10 – 99°C			
	KP-Room	0,0 – 30,0	4,0		
	Max. Outside temp.	0 – 30°C	17°C		
Heating times	See heating times heating circuit 1				
Hheating curve	T –20	10 – 90°C	68°C		
	T +20	10 – 60°C	30°C		
Heating regul.	Only for customer service				

Menu	Parameters	Setting field	Default setting	Starting up	Customized setting
Heating circuit 2	Heating circuit mode	Outside temperature Heating circuit OFF FIX			
Operation mode	Operation mode		Outside temp.		
	Flow reduction	1 – 30 K	12 K		
	Fix value	10 – 99°C	30°C		
	KP-room	0,0 – 30,0	4,0		
	Max. Outside temp.	0 – 30°C	17°C		
Heating times	See heating times heating circuit 1				
Hating curve	T –20	10 – 90°C	60°C		
	T +20	10 – 60°C	23°C		
Heating regul.	Only for customer service				
Heating circuit 3	Heating circuit mode	Outside temperature Heating circuit OFF FIX			
Operation mode	Operation mode	Outside temperature Heating circuit OFF FIX	Outside temp.		
	Flow reduction	1 – 30 K	12 K		
	Fix value	10 – 99°C	30°C		
	KP-room	0,0 – 30,0	4,0		
	Max. Outside temp.	0 – 30°C	17°C		
Heating times	See heating times heating circuit 1				
Heating curve	T –20	10 – 90°C	45°C		
	T +20	10 – 60°C	20°C		
Heating circuit regul.	Only for customer service				
Heating circuit 4	Heating circuit mode	Outside temperature Heating circuit OFF FIX			
Operation mode		Outside temperature Heating circuit OFF FIX	Outside temp.		
	Reduction		12 K		
	Fix value	10 – 99°C	30°C		
	KP-room				
	max. outside temp.	0 – 30°C	17°C		
	See heating times heating circuit 1				
Heating curve		10 – 90°C	45°C		
	T +20	10 – 60°C	20°C		
Heating circuit regul.	Only for customer service				

21 Customer specific settings

› Pellet boiler times (valid only on time operation mode)

Day	Default setting		Start-up	Customized setting
Su	05:00 – 04:59	-- :-- - -- :--		
Mo	05:00 – 04:59	-- :-- - -- :--		
Tu	05:00 – 04:59	-- :-- - -- :--		
We	05:00 – 04:59	-- :-- - -- :--		
Th	05:00 – 04:59	-- :-- - -- :--		
Fr	05:00 – 04:59	-- :-- - -- :--		
Sa	05:00 – 04:59	-- :-- - -- :--		

› Domestic hot water loading times

Day	Default setting		Start-up	Customized setting
Su	05:00 – 04:59			
Mo	05:00 – 04:59	-- :-- - -- :--		
Tu	05:00 – 04:59			
We	05:00 – 04:59	-- :-- - -- :--		
Th	05:00 – 04:59	-- :-- - -- :--		
Fr	05:00 – 04:59			
Sa	05:00 – 04:59	-- :-- - -- :--		

› Buffer loading times (valid only on buffer operation mode)

Day	Default setting		Start-up	Customized setting
Su	05:00 – 04:59	-- :-- - -- :--		
Mo	05:00 – 04:59	-- :-- - -- :--		
Tu	05:00 – 04:59			
We	05:00 – 04:59	-- :-- - -- :--		
Th	05:00 – 04:59	-- :-- - -- :--		
Fr	05:00 – 04:59	-- :-- - -- :--		
Sa	05:00 – 04:59	-- :-- - -- :--		

› Heating times for heating circuit 1

Day	Default setting		Start-up	Customized setting
Su	05:00 – 04:59	12 :00 – 22 :00		
Mo	05:00 – 04:59	12 :00 – 22 :00		
Tu	05:00 – 04:59	12 :00 – 22 :00		
We	05:00 – 04:59	12 :00 – 22 :00		
Th	05:00 – 04:59	12 :00 – 22 :00		
Fr	05:00 – 04:59	12 :00 – 22 :00		
Sa	05:00 – 04:59	12 :00 – 22 :00		

› Heating times for heating circuit 2

Day	Default setting		Start-up	Customized setting
Su	05:00 – 04:59	12 :00 – 22 :00		
Mo	05:00 – 04:59	12 :00 – 22 :00		
Tu	05:00 – 04:59	12 :00 – 22 :00		
We	05:00 – 04:59	12 :00 – 22 :00		
Th	05:00 – 04:59	12 :00 – 22 :00		
Fr	05:00 – 04:59	12 :00 – 22 :00		
Sa	05:00 – 04:59	12 :00 – 22 :00		

› Heating times for heating circuit 3

Day	Default setting		Start-up	Customized setting
Su	05:00 – 04:59	12 :00 – 22 :00		
Mo	05:00 – 04:59	12 :00 – 22 :00		
		12 :00 – 22 :00		
We	05:00 – 04:59	12 :00 – 22 :00		
Th	05:00 – 04:59	12 :00 – 22 :00		
Fr	05:00 – 04:59	12 :00 – 22 :00		
Sa	05:00 – 04:59	12 :00 – 22 :00		

› Heating times for heating circuit 4

Day	Default setting		Start-up	Customized setting
Su	05:00 – 04:59	12 :00 – 22 :00		
Mo	05:00 – 04:59	12 :00 – 22 :00		
Tu	05:00 – 04:59	12 :00 – 22 :00		
We	05:00 – 04:59	12 :00 – 22 :00		
Th	05:00 – 04:59	12 :00 – 22 :00		
Fr	05:00 – 04:59	12 :00 – 22 :00		
Sa	05:00 – 04:59	12 :00 – 22 :00		

22 Notes

Subject to technical changes and errata!

DECLARATION OF CONFORMITY
EU Declaration of Conformity for Discharge Systems

WITHIN THE MEANING OF THE EC MACHINERY DIRECTIVE 2006/42/EC, Annex II 1 A

The manufacturer

Biotech Energietechnik GmbH
Furtmühlstrasse 32
A-5101 Bergheim bei Salzburg

Here with declares that the machines/products produced and sold by us

Worm discharge	**Return air probe**	**Rotation discharge**
Hose switch	**PLS Pellet Storage System**	

Are in compliance with the provisions of the following directives:

2006/42/EG | Machinery Directive

The following harmonized standard(s) has (have) been applied:

EN ISO 12100-1/A1: 2009-10 | Safety of Machinery

DECLARATION OF CONFORMITY
EU Declaration of Conformity for Pellet Heating Boilers

IN THE MEANING OF THE EC LOW-VOLTATE DIRECTIVE 2006/95/EC, Annex II 1 A

The manufacturer

Biotech Energietechnik GmbH
Furtmühlstrasse 32
A-5101 Bergheim bei Salzburg

Here with declares that the machines/products produced and sold by us

Top Light Pellet Heating Boiler	**Top Light M Pellet Heating Boiler**
Top Light M (MBW) Pellet Heating Boiler	**PZ8RL Pellet Heating Boiler**
PZ25RL Pellet Heating Boiler	**PZ32RL Pellet Heating Boiler**
PZ35RL Pellet Heating Boiler	**PZ65RL Pellet Heating Boiler**
PZ100RL Pellet Heating Boiler	**PZ101RL Pellet Heating Boiler**

Are in compliance with the provisions of the following directives:

2006/42/EG | Machinery Directive

2006/95/EG | Low-voltage Directive

2004/108/EG | EMV- Directive

89/106/EEC | Construction Products Directive

The following harmonized standard(s) has (have) been applied:

EN 303-5 | Solid Fuel Heating Boilers
Manually and automatically charged firing/furnaces, rated thermal output up to 300 kW
EN 60335-2-102 | Electrical Equipment Safety
EN61000-3-2
EN61000-3-3
EN61000-6-2
EN61000-6-4
EN55014-1
EN55014-2

Bergheim, 28.08.2011

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Version: 940000100030 06/13 EN

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with Biotech pellet and chipping heating systems.

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